AMERICAN

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

ASSISTANT EDITORS:

JAMES T. HODGE, *For Mining and Metallurgy.*
CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*
M. BUTT HEWSON, *For Civil Engineering.*

SATURDAY, AUGUST 10, 1850.

Second Quarto Series, Vol. VI., No. 32.---Whole No. 747, Vol. XXIII.

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NEW-YORK:

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., 136 NASSAU ST.

Saturday, August 10, 1850.

English Iron Manufacture.

We copy below the following very interesting statistics from the "Documents relative to Iron manufacture in Pennsylvania," of the progress of the English iron manufacture from the earliest date to the present time. These statistics were compiled with great care and labor from authentic sources, and may be relied upon as correct. We cannot, we believe, give anything more interesting and useful to our readers than the progress of this stupendous branch of English national industry:—

1661. A petition was presented to the House of Commons, praying that a duty might be laid on iron; but the House refused to grant it.

1679. The first duty was laid upon iron of 10s per ton.

1710. The duty on iron imported in English vessels was £2 1s 6d per ton. The duty on iron imported in foreign vessels was £2 10s 10d per ton. The duty on iron imported, made in Ireland, was £1 per ton.

1740. There were 59 furnaces, producing 17,350 tons of iron per annum, or 294 tons each furnace; equal to 5½ tons a week to each furnace. Up to this time, all the iron was made with charcoal.

1750. An act of parliament was passed to encourage the importation of Pig iron from the colonies, by taking off the duty of 3s 9d, which had been heretofore levied on colonial pigs, the same as foreign iron. This was agreed to by the iron masters, owing to the scarcity of charcoal, and it was argued, that, as the country could afford no more charcoal for additional furnaces, they must either gradually abandon the manufacture, or take off the duty, and keep their charcoal for refining or manufacturing those pigs into bars, chains, and all finer articles; and, for that reason, the act also provided that no mill, or other engine, for slitting or rolling iron, or any plating forge to work with a tilt hammer, or any furnace for making steel, should be erected in the colonies, and those already erected should not be carried on.

The imports of American iron into Great Brtain had averaged, for the previous ten years, 2 360 tons per year, and regularly increased until 1771, when they reached 7,525 tons, being rather more than 1-6 the total import of all kinds of iron into England at that time.

We add the copy of a letter from the officers of his Majesty's Dock Yard at Woolwich, to the Navy Board, dated September 3d, 1735:—"We have lately received from his Majesty's yard at Deptford, barr iron flatts, of two and a quarter inches broad, and half an inch thick, 15cwt 0qr 4lbs; squares of seven-eighths of an inch, 5cwt 0qr 12lbs, imported by Mrs. Cowley, from America; and, pursuant to your warrant of the 11th July, 1735, have made sufficient tryal of each of the sorts, find the said iron to be very good, and fit for his Majesty's service—superior in every respect to the best Swede's iron, and, in our opinion, worth £17 10s 6d per tun."

1760. Cast iron blowing cylinders were first used.

1769. Watt's first patent taken out for improvements in the steam engine.

1775. Partnership of Boulton & Watt formed, and steam engines applied to pumping mines, and to the manufacture of iron.

1782. Duty on iron raised to £2 16s 2d, being an increase of 14s 8d.

1783. Mr. Cort invented the process of puddling, and, consequently, the substitution of mineral coal for charcoal in the manufacture of bar iron.

1784. He invented the Rolling Mill.

The price of iron for a long period previous to this time had been pretty steady at from £17 to £18.

From this time should be dated the commencement of the present English iron manufacture, as the preceding 24 years embrace all the inventions now in common use—inventions which entirely revolutionized the old system of making iron, and to which England owes the extent and cheapness of her manufacture at the present day. And from this time, also, is to be dated the commencement of her system of protection to her own manufactures and prohibition to all others, by which the domestic competition in 41 years enabled her to manufacture iron at prices defying all rivalry, when she throws open her ports and proclaims free trade or free competition, when the fact of her exporting iron to every kingdom in the world demonstrated that nobody could compete with her.

1785. It was prohibited to export any tools, engines, models or plans of machines used in the manufacture of iron, under a penalty of one year's imprisonment, £200 fine, and the confiscation of the articles shipped, or *intended* to be shipped. The same fine of £200 to be inflicted on the master of the vessel. and on the custom house officers, who were to be dismissed, and forever to be incapable of holding any office under his Majesty. For enticing a workman, the penalty was one year's imprisonment and £500 fine for every workman so enticed; fine to be doubled on the second offence.

1787. The preceding act amended so as to allow tools used in the iron manufacture to be exported to the West India colonies, *except* Rollers, plain or grooved, and all other tools and utensils relating to the Rolling or Slitting mills, the punching of iron or casting of cannon. The importation of iron slit or hammered into rods, and iron drawn or hammered less than three-quarter inch square, and all wrought iron, except bars unwrought, hoops and scraps, and all manufactures of iron and steel *prohibited*.

1788. There were 77 furnaces in all, producing 61,900 tons of iron a year, being 804 tons to the furnace; being an increase in the yield of 173 per cent., owing to improved machinery and greater skill.

1795. The act of '86 prohibiting the export of tools and machinery, &c., was made perpetual.

1796. Duty raised to £3 1s 9d per ton, being an advance of 5s 7d. At this time there were 121 furnaces, producing 124.032 tons per annum, being 1,032 tons to the furnace—showing an increased yield of 28 per cent. in 8 years.

1797. The duty was raised to £3 4s 7d, being an increase of 2s 10d.

1798. The duty was raised to £3 15s 5d, being an increase of 10s 10d.

1800. Tooke. in his work on "high and low prices," Part IV., page 37, speaking of this period of the iron trade, says:—"Thenceforward the produce of iron in this country (Great Britain) proceeded so rapidly, that, with the aid of further duties, amounting almost to a prohibition of importation it not only kept pace with the increasing demand, but has eventually nearly superseded the use of foreign iron in this country, and has furnished a surplus for exportation. The price of foreign iron, accordingly, fell almost progressively from 1801 till the close of the war—(1815.)

1801. The black band ore discovered in Scotland by Mushet. The same year he introduced a new system of coking the coal by which a saving of fuel was obtained.

1802. There were 168 furnaces, estimated to produce 170,000 tons.

1803. Duty raised to £4 4s 4½d, being an increase of 8s 11½d.

1804. Duty raised to £4 17s 1d, being an increase of 12s 8½d.

1805. Duty raised to £5 1s, being an increase of 3s 11d.

1806. Duty raised to £5 7s 5½d, being an increase of 6s 5½d.

At this time there were 227 furnaces in all, of which 167 were in blast, producing 258,206 tons per annum, or 1,540 tons to the furnace—showing an increased yield of 49 per cent. in 10 years.

1809. Duty raised to £5 9s 10d, being an increase of 2s 4½d.

1813. Duty raised to £6 9s 10d, being an increase of £1.

1814. Mr. Hill patents the use of puddler's and heater's cinder in the blast furnace instead of ore.

1818. Product this year estimated at 300,000 tons, showing an increase of 41,794 tons a year.

1819. Duty, if imported in English vessels, raised to £6 10s per ton.

Duty, if imported in foreign vessels, raised to £7 18s 6d per ton.

Iron slit or hammered into rods; iron drawn, or hammered less than ¼ of an inch square, (heretofore prohibited,) now admitted at a duty of £20 per ton.

Pig iron, heretofore charged a duty of 27½ per cent., now charge a duty of 17s 6d per ton.

Kinds not enumerated, heretofore prohibited, now admitted at a duty of 50 per cent.

Hoops heretofore charged £11 8s 4d per ton, now charged £23 15s per ton.

1820. Mushet computes the product this year at 400,000 tons, being an increase of 141,974 tons on the make of 1806, or 55 per cent. in 14 years.

1823. Amount of iron produced, 452,066 tons, being an increase of 193,860 tons, or 75 per cent. in 17 years.

1824. Black band ore first used alone in the furnace, at Monkland, Scotland.

1825. There were 261 furnaces in blast.
103 " out "
364 " producing 581,367 tons, being an increase of 129,301 tons, or 29 per cent. in two years; average yield per furnace, 2,228 tons; an increased yield per furnace of 45 per cent in 19 years.

M. de Villefosse states the price of bar iron at the works, in various countries, this year, to be—

France	Per ton	£26 10
Belgium and Germany	"	16 14
Sweden and Stockholm	"	13 13
Russia and St. Petersburg	"	13 13
England, at Cardiff,	"	10 00

1826. Duty reduced to £1 10s on bars, being a decrease of £5.

Slit, or hammered into rods, reduced from £20 to £5.

Hoops, duty not changed, per ton, £23 10s.

Pig iron, per ton, £10.

Kinds not enumerated, 20 per cent.

We have now traced the English duties through fifteen different changes, during a space of 147 years of unwavering protection, always under specific duties, and always increasing in amount, until they were no longer needed. We subjoin a list of the countries they shipped iron to at this time, arranged in the order of the quantities they took respectively. It comprises every nation in the world, the United States standing second in quantity. In 1830 we became the largest customers, and have remained so ever since.

	Tons.		Tons.
Asia	12,631	Mexico and S. A. Republics,	2,317
United States	12,491	Turkey and Egypt	2,273
Italy	9,435	Gibraltar	1,601
France	7,910	Spain	1,493
British West Indies	6,908	Africa	1,411
N. A. Colonies	6,067	Malta	660
Portugal	6,067	Denmark	319
Netherlands	4,759	Russia	159
Brazil	2,789	Norway	94
Germany	2,615	Prussia	68
Foreign W. Indies	2,515	Sweden	10

The imports of foreign iron for consumption for the 10 years previous to 1826 averaged 9,729 tons, or 10½ per cent. of the exports of British iron.

And for the succeeding 10 years of low duties, were 14,586 tons, being 10½ per cent. of the exports of British iron for the same period, showing that the duty had become a dead letter before it was taken off, as the imports of foreign iron, after the duties were taken off, did not quite maintain their proportion to the exports of British iron. We subjoin a table of the imports and exports for 20 years after the reduction of the duties, averaged for each period of ten years.

		Average Annual Amount. English Iron Exported.	Foreign Iron Imported & Consumed.
		Tons.	Tons.
Average for 10 years ending Jan'y 5th,	1806	29,447	35,541
	1816	50,908	14,373
Duty Reduced....	1826	92,721	9,729
	1836	142,996	14,586
	1846	332,810	19,479

	Average Prices in England. English Bars.			Swedes Bars.			Russian Bars.		
	£	s.	d.	£	s.	d.	£	s.	d.
Average for 10 years ending Jan'y 5, 1806	18	10	8	21	9	6	19	8	0
1816	14	3	9	17	9	0	16	8	0
Duty Reduced. 1826	10	5	6	16	12	6	17	15	0
1836	7	8	9	14	10	0	18	10	0
1846	8	0	11	12	10	8	18	2	6

But every maker of iron knows that English iron, and Swedes or Russian, (forming nine-tenths of their imports,) cannot be regarded as competing articles. The latter iron being all charcoal hammered bars, is entirely used for purposes for which the English iron is not fit, and is, in fact, a raw material to the English manufacturer of steel, and other fine articles, and, therefore, it was against their interest to have had a duty placed on it. Mushet "Iron and Steel," page 536, speaking of this difference says:—"A variety of processes have been followed out to form a good quality of bar iron with coke pigs and pit coal; in no case has a uniform quality been produced, able to cope for all uses with the superior marks of Russia and Sweden. We acknowledge with pain and humiliation our dependence upon other countries for our Steel Iron, and it is with regret we see every industrious exertion made to obviate this dependence, foiled by the nature of our fuel, or the defective qualities of our ores.

1829. Mr. Neilson, of Glasgow, patents the use of hot-blast, effecting a great saving in fuel.

1830. Total number of furnaces, 360; yield 678,417 tons.

1833. Hot-blast better understood, and raw coal substituted for coke in Scotland, effecting a further saving in fuel.

1834. The prohibition to export iron rollers and tools, or machines belonging to iron works and various other works, recited and confirmed; penalty, forfeiture of the goods.

1836. Iron made this year estimated at 1,000,000 tons.

1837. Mr. Crane smelts iron successfully with Anthracite coal and hot-blast.

1839. Mr. Mushet states the number of furnaces to be 377 mineral coal, and 1 charcoal, making 378; in all, producing 1,248,781 tons.

1840. Number of works this year, 490; out of blast, 88; in blast, 402; producing 1,396,400 tons.

This being the result of a careful personal enquiry by a gentleman extensively known in the trade, is believed to be nearly correct.

This would give the annual product of each furnace 3,473 tons. Hot-blast furnaces, 162; Cold-blast furnaces, 240.

Coal consumed to the ton of iron in Scotland, 3 tons.

Coal consumed to the ton of iron in England and Wales, 3 tons 12 cwt.

1842. The association of Iron Masters of York and Derbyshire, estimate the decreased make of iron this year, at 22½ per cent. on make of 1840, which would give for the product this year, 1,087,700 tons.

1843. Mr. Buckley—member of Parliament for New-Castle—estimates the make this year at 1,215,350 tons, being a decrease on 1840 of 181,050 tons, or 13 per cent.

The greatest decrease is in South Staffordshire, where it amounted to 106,900 tons, or 24½ per cent. on their make in 1840.

Duty reduced on bars to £1.
" hoops and rods, £1 10s.
" pig iron, 5s.

1844. Amount of iron made this year, estimated at 1,210,000 tons.

1845. Make this year estimated at 1,512,500 tons.

1846. Duty on iron taken off entirely.

1848. The Commissioner appointed by Parliament reports the make of iron this year to be 1,998,568 tons, as follows:

	Furnaces. In blast.	Out blast.	Total No.	Product. Average per week Tons	cwt.	Total for the year. Tons.
North Staffordshire,	16	3	19	78	15	65,520
South do	77	62	139	80	00	320,320
Yorkshire	23	5	28	55	13	66,560
Derbyshire	20	10	30	91	10	95,160
Shropshire	28	6	34	60	14	88,400
Northumberland	24	12	36	80		99,840
Scotland	89	41	130	115		539,962
North Wales	5	6	11	62		16,120
South do	151	45	196	90		706,680

Total No. in blast. 433 —
" out blast. 190 —
" in kingdom 623 —
" tons produc'd 1,998,568

1849. The make this year may be set down at fully 2,000,000 tons. The cholera and the disturbed state of the continent have tended to depress prices, both to the manufacturer and the workmen; and the closing of many of the continental markets for iron has forced the enormous quantity of 318,875 tons on our market, at prices below our cost of production.

Life of Richard Trevithick, C. E.

BY HYDE CLARKE, ESQ.

Continued from page 485.

Among Trevithick's modifications, was the adoption of a single cylinder for working the steam expansively. In 1816, Messrs. Jeffree and Gribble, who had been educated under Trevithick, erected a new engine with a 76-inch cylinder, at Dolcoath, where Trevithick had been engineer.* This was a single-acting Boulton and Watt engine, but was worked with high pressure steam expansively, supplied from boilers on Trevithick's construction.—In the first year it performed 40 millions, being a much higher duty than had hitherto been reached by any single cylinder engine. It long maintained its high character, and, singularly enough, improved as it was more used. In 1817, it reached 44 millions, and in 1819 was the best engine reported.†

One of Trevithic's plans was an improvement on steamboats by propulsion at the stern, and he suggested the use of a spiral wheel, revolving at the stern, as preferable to the use of side paddle wheels. The modern extension of this mode of propulsion is well known. Another proposition of his for promoting steam navigation, was the revival of the plan of giving motion to the engines by means of the reaction of the steam made to spout against the atmosphere.

In 1815, he effected an improvement in his high pressure engines, by forming the piston so that a ring of water should run all around it, and render the whole air tight; as he found in practice that a very moderate degree of tightness in the packing produced this result.‡

We now come to a romantic period of Trevithick's life. Uville, a Spaniard, seeing the decline of the American mines, from the insufficient power of drainage in the old works, was desirous of adopting the English method of pumping by steam. For this purpose he came to London in 1814, but his efforts were baffled by the difficulty of transporting cumbrous machinery over the mountain districts, and by the diminution of power to which atmospheric engines would be subjected when worked in

* Professor Pole, in Appendix G. p. 52.

† Lean's Historical Statement.

‡ Historical and Descriptive Anecdotes of the Steam Engine, by R. Stuart, p. 520.

the rarefied atmosphere of the Cordilleras. To Watt and to other eminent engineers he applied urgently, but without success.

When on the point of departing from England, frustrated in his object, he chanced to see a finished working model of Trevithick's engine exposed for sale in the shop of Mr. Roland, in a street near Fitzroy-square. This model Uville carried to Peru, and, to his unutterable joy, he had the pleasure of witnessing its successful working on the high ridges of the Sierra de Pasco.

Thus encouraged in his daring plan, he entered into partnership with two rich merchants at Lima, and obtained from the Viceroy of Peru the privilege of working some of the abandoned mines.—He once more started for England, and while on his voyage, talking with Mr. Teague, a fellow-passenger, of his anxiety to discover the inventor of the model, he was most agreeably surprised to hear Mr. Teague answer, that "Trevithick was his near relative, and that he could bring them together within a few hours of their arrival at Falmouth."

Accordingly, on his arrival, Uville proceeded to Camborne, and had an interview with the great Cornish genius, to whom no undertaking could have been offered which he would have better liked. They readily came to terms; Uville remained some months with Trevithick, profiting by his instructions, and after a tour through the mining districts, proceeded to Soho, but met with no encouragement from Boulton and Watt. Trevithick then undertook to furnish the necessary engines, and set actively to work.

In September, 1814, Uville embarked at Portsmouth, for Lima, taking with him three engineers and nine of Trevithick's engines. The names of the engineers were, William Bull, formerly Trevithick's partner; Henry Vivian, of Camborne, a kinsman of Andrew Vivian and Trevithick; and Thomas Trevarthen, of Crowan.

Uville was received at Lima with the greatest honors and rejoicings, and landed with his cargo under a royal salute. It was not until the middle of 1816 that he was able to surmount the local difficulties of transport, and place the first engine in operation. Trevithick, however, had nobly armed himself against the antagonist obstacles, and all that his ingenuity could suggest had been put in practice. The machinery, simplified to its greatest extent, was so divided as to form adequate loads for the weakly llama, and the beams and boilers, made in several pieces, were transported over precipices where a stone may be thrown for a league.

The engine erected at Lauricocha, in the province of Tarma, was put into operation, and, in the presence of the government commissioners, drained the first shaft of the mine of Santa Rosa, one of the Pasco district. The greatest expectations were created, and amid the profusion of honors showered upon the projectors, nothing seemed to be wanted but the presence of the meritorious inventor himself.

In the meantime, Trevithick had been actively employed in preparing for his departure. He had constructed several new engines, and an apparatus for the Peruvian mint. He had also directed his attention to a point of the greatest importance in the then scarcity of quicksilver, the purification of silver ore by fusion, for which he constructed furnaces.

In October, 1817, Trevithick gave up all his property in England, and, leaving it to his wife and children, embarked for Peru.

At this time he had successively achieved the application of high pressure steam, and had greatly increased the duty of the Cornish engine. The locomotive engine of his invention was then in practical operation, and had acquired the power of drawing 30 tons, at the rate of four miles an hour, and was found to be capable of surmounting rising gradients. Trevithick was in the zenith of his power, and all that he had promised, and which had been so long delayed by prejudice, was then accomplished; having, indeed, done more than any other man for extending the domain of steam.

In February, 1818, he arrived at Lima, where his presence excited the utmost enthusiasm. He was received with the greatest honors, while the official announcement of his arrival, in the Government Gazette, created the greatest expectations among the whole people. He immediately obtained an audience of the Viceroy, and the Lord Warden of the Mines was directed to escort him, with a guard of honor, to the seat of his future labors. The chief men of the mining district came many days' journey to Lima to see and welcome him, and all exerted themselves to show their esteem for the well deserving Don Ricardo Trevithick. Never, perhaps, was European so well received in the New Indies. He was no Las Casas coming to rescue an injured population from oppression, he came as a benefactor in another way, as a man of science, to repair their old resources, and to open new mines of wealth. It was the first benefit they had received from the Old World, and no wonder that a warm-hearted people welcomed Trevithick with as much enthusiasm as Columbus had awoke in Spain.

The exertions of Trevithick were crowned with success, and he was equally rewarded by their profitable return, and by the gratitude of the people. The produce of the mines grew in an unexpected degree, and the coining machinery was increased sixfold. His partners united in expressing their obligations to him, and the authorities showered down honors upon him. He is said to have been created a marquis and a grandee of Spain, and the Lord Warden of the Mines proposed to raise a statue to him in massy silver.*

The times, however, changed, political dissensions arose, and civil war broke out, Trevithick's fortunes changed to losses, and he determined to leave Peru; but this was no easy matter, for the veneration with which he was looked upon, as a benefactor sent from Heaven, made the people regard his absence as a public calamity, and take every measure to prevent his departure. At length he made his escape, through dangers which few less adventurous than himself could have encountered; and after escaping the terrors of the mountain and the desert, and the arm of the wandering savage, he again arrived safely in England, landing at Palmouth on the 9th October, 1827, bringing back, according to some accounts, a pair of silver spurs, as the sole remains of his once great wealth.

The great panic had then cast its gloom around, and Trevithick vainly endeavored to raise capital to carry out some of his colossal projects. Those who knew his skill feared the waywardness of his character; and those who did not know his ability were repulsed by the giant nature of his enterprises. It was in vain he urged his own success, and represented the boundless resources of the Andean range. While in America, he had obtained grants of large tracts of land, and on one estate had a mountain of copper ore, which, like the hill mines of Potosi, or Montserrat, it would take hundreds of years to hew down. Here he proposed to construct railways, and, by the aid of capital and machinery, make the shores of the Pacific a grand commercial mart.

From this time little was heard of him, and a few years afterwards he died at Dartford, in Kent, on the 22d of April, 1833, leaving no other inheritance to his family but the grandeur of his name and the glory of his works.

Trevithick married a Miss Harvey, a lady of good connections; her brother subsequently acquiring a large fortune. An anecdote is related in connection with this lady, which proves Trevithick's love for her, and his spirit of perseverance even in trifles, for that during his long courtship, and notwithstanding the business in which he was engaged, he never missed walking every evening several miles to visit her.

He left by his lady two sons, Frederick and Richard, both members of the engineering profession, and holding high appointments as superintendents of locomotives. Thus they live by the fruits of their father's ingenuity.

Trevithick was of a robust and well proportioned form, and had an expressive countenance. In his manners he was plain and blunt, but not rude; he maintained his opinions with honesty and firmness, and was only in fault that too frequent success made him adhere them with pertinacity. He had, however, many disadvantages and many defects. The fertility of his invention led him to take more pleasure in imagination than in perseveringly carrying out his ideas to a practical result. Thus, even before his own departure for Peru, he had abandoned the locomotive to its fate, and left it to the kindred genius of George Stephenson for its accomplishment. The same is to be said of many other of his inventions, that he left to others to finish them, while some of his most promising designs went no further than the suggestion. Hence many were inclined to look upon him as a mere schemer, and withdrew their countenance, particularly after they had suffered in his experimental enterprises.

In reviewing his career, and comparing it with that of his great rival, Watt, we are able to appreciate the fortune of the latter, in the steady friendship and co-partnership of Matthew Boulton, a resource which had Trevithick possessed, we do not know that he would have achieved greater results, but he would have enjoyed more reputation in his lifetime, and a better share of this world's goods, while his inventions would have been carried out by himself, and not by others.

Whatever may be the opinion as to his superiority over Watt, or his equality with him, this must be confessed, that next to Watt no other man has yet done so much for the steam engine as Richard Trevithick.

* For the best account of the early part of Trevithick's American career, see a paper of Mr. Boase, in the first Volume of the Transactions of the Geological Society of Cornwall, p. 212.

An Essay on Pen and Pocket Cutlery,

Embracing a Detailed Description of the Mechanical, Chemical, and Manual Operations Performed on Certain Raw Materials, to Convert them into the Means, Implements, and Materials, for Manufacturing Pen and Pocket Knives.

BY A. L. HOLLEY.

Continued from page 457.

CHAPTER IX.—View of a Cutlery Establishment Ten Years Hence. Silver Back and Other Knives. Silver. Tin. Gold. Covering.

Having followed the fine and the jack knife through the various operations to which they are subjected, and left them perfect and complete, let us for a moment suppose ourselves in a cutlery establishment in the year 1860, and see the perfection to which our present machinery, and that which is now building or contemplated, will be eventually brought. Let us follow a plain jack knife for instance through the mechanical and other operations which are sure to be performed, and witness the result which is sure to follow. Here, the cutler's trade is divided, as stated in chapter I., and the consequence is, that each man can perform his part more easily and cheaply than he can at present.—Let us suppose ourselves at one end of the building where we see an improved machine, similar to one described in the last chapter, receiving at one side strips of heated iron, and ejecting at the other strings of scales and bolsters, which have passed through its bosses at the rate of perhaps 300 per minute. A boy, for 25 cents per day, takes these strips, and passes them through another machine which consists of a chisel moving vertically, and a carriage, and which separates the scales as fast as they are made. Another hand then places them in the die of a fly press, which by machinery described in the last chapter, and already in successful operation, marks the bolsters, pricks the orifices in the scales, and fits them to the plate. The first mentioned machine, imperfect as it is at the present day, will keep in operation at least 12 or 15 of the fly presses; so we will suppose 15 of the latter at work. Perhaps 10 other boys drill the bolsters, while with good fly presses and apparatus two boys can make and mark 150 springs per minute, and another can place them between rollers instead of under a drop, the fixtures being correct, and 10 more can drill them as fast as they are made. Two

hands at the press, and no less than 230 forgers could supply the blades at the rate of 150 per minute. These are drilled by five boys and made smooth on the tangs side by dozens in a machine already in operation to some extent, and consisting of a carriage and a burr wheel, arranged something like those of lathes for turning irregular surfaces, as gun stocks and lasts. Perhaps 12 boys could attend to these machines, and 12 more with similar apparatus could dress the backs of the springs. A substance made from gutta percha, which is now coming into use for knife handles, the colors of which are rich and variegated, which will not easily split, but can be pressed into any required shape, is bought cheaper than cocoa wood, and in the exact form of the handles. This covering is with a simple machine, consisting of a carriage, gauges and a double drill bored for the rivets by 10 or 12 boys—for boys and green hands can do this work as well as men—at the rate of 300 per minute, and we can almost imagine perhaps 10 machines, far more simple than those which make pins and hooks and eyes, rivetting this gutta percha to the scales at the rate of 18,000 pieces per hour. This is no idle speculation, however improbable the statement may appear at first sight. Two men can easily temper the springs with proper apparatus as fast as they are prepared, and 10 more with a lathe, similar to one before described, can dress them, and the scale edges, with charcoal and bowlder. All is now ready to be put together, rivetted and hafted, and without running the risk of being called infatuated and insane, we will not suppose these operations to be performed by a machine, but by the old way, which would take perhaps 500 men. These are glazed by perhaps 250 hands, and finished by 100 more, and thus we see *ninety thousand* jack knives commenced and finished in one day by 1183 men, for the sum of $1,567 75. If we may be permitted to suppose some of the last of these operations and the grinding to be performed by machinery, which in all probability will be the case, we have 90,000 knives made in 10 or 12 hours by perhaps 600 men and boys, for a sum not exceeding $1,100. This would allow 150 knives, and about $1 83¼ cents to each man, thus making a dozen knives that now cost from two to three dollars, for from 16 to 20 cents, including materials—or three knives for four cents!

There is among the almost endless variety of knives, a pattern called the steel handled knife, which consists of a blade, rivet, and handle, the latter embracing the scales, covering and spring.—The handle is formed from two strips of steel; one end of each strip is a square rod, the other a flattened sheet. The square portions, which correspond, being welded, form the spring, and the other part, being bent in towards the inside of the knife, form the scales. The blade is fitted, dressed and rivetted in as usual, and the handle is glazed and polished with charcoal. The time is certainly not far distant when these knives will be made by machinery at an astonishing rate, and as there are no scales of wood to put on, and but two holes in the handle, we may suppose one machine capable of supplying some 75 forgers with perhaps 18,000 finished handles per day. Another very stout and useful, though uncommon knife, consisting of steel, iron or brass scales, [which form the covering and bolsters] a blade and spring could be made by a few workmen, aided by machinery in great quantities, and with little expense. Either a fly press and a drop, or a machine similar to the one in use for iron scale making, could form and bevel the edges of these scales. The last named machine could make from 150,000 to 180,000 of the scales, which might be drilled and finished with the spring by a dozen men, by the ten thousand, while the *blades*, which are as it were the *soul* of the knife, would keep hundreds of workmen in employment. The backs of many fine knives are covered with silver, or gold, for the purpose of making them more rich and beautiful in appearance, and also to prevent them from tarnishing and rusting. For such purposes the precious metal, if it is to be milled, is rolled into very thin sheets, and if it is to be finished plain, it is left about the thickness of a shield. The springs are fitted as usual, then a portion of the backs, as thick as the silver, is removed with a file. The spring edges are then bevelled, and the whole left rough and tempered. The silver is cut into sheets about twice the width of the spring, and milled by holding them between a leaden cylinder and a steel plate, whose upper surface is indented, and worked with figures, etc. The silver is then placed on the spring, and the whole wound with extremely fine steel wire. A solder of tin and lead is placed with resin on the projecting edges of the silver, which is covered with a coat of chalk to prevent its burning, and the spring held over the flame of an alcohol, or an oil lamp, till the solder has fastened the silver to the rough and bevelled edges of the steel. The tangs, and the sides, ends and insides of the springs are then fitted, filed down and dressed, and the knife is finished as before described. The silver is polished with chalk and a brush revolving like a glazer, by machinery. Plain silver backs are put on in either the same, or another way, which consists of soldering them to a thin piece of steel shaped like the back of the knife, inside of which are the springs. Steel back knives are sometimes made in this way, but are no better than common knives, as the steel will rust and tarnish as well in one form as in another. The insides of springs are often fluted and worked by files and other instruments, and bolsters are sometimes figured, though they are usually considered more handsome when left plain and highly polished.

To be continued.

Daguereotyping Stars.

It was recently announced that Mr. Bond, of the Cambridge Observatory, had succeeded in taking a a daguerreotype of the star Lyræ, which is not visible to the naked eye. An interesting communication in relation to this subject, is published in the Boston Advertiser, from which we make the following extract:

"The question will doubtless occur to many of the readers of that article, to what good purpose can this discovery be applied? One of the first direct applications of it would be the measurement of the angles of opposition and distance of double stars. It is interesting to be assured of the fact, that the light emanating from the stars possess the requisite chemical properties to produce effects similar to certain of the solar rays, and that these properties retain their efficacy after traversing the vast distance which separates us from steller regions. Of this distance some idea may possibly be formed, if we can imagine a plain of two hundred millions of miles in extent, at the distance of the star alpha Lyræ, and favorably presented to a spectator situated on the earth, appearing as a mere point, only measureable by the aid of an excellent telescope, furnished for an accurate micrometer; or that light moving at the rate of 190,000 miles in a second of time would require more than twenty years to traverse the intervening space. Yet such are the facts, and it follows that the ray of light which made the first impression on our dagurreotype plates on Tuesday evening, took its departure from the star more than twenty years ago, long before Daguerre had conceived his admirable invention.

"Our experiments have also a bearing upon the nature of the light emitted from the stars.

"The images which we have thus far obtained, are quite decided, having pretty distinct nuclei, although elongated, and too broad for the nicer purpose of measurement. This apparent enlargement of the disc we attribute, in a great measure, to two causes. One is the variable nature of atmospheric retraction, when influenced by sudden changes of temperature. This trouble we hope to get rid of by increasing the sensitiveness of the surface receiving the impressions. The other operation will then require less time, and of consequence, be subject to fewer and less extensive vibrations.

"The other difficulty to be overcome is the irregular motion of the machinery which carries the telescope. Although the machinery at present attached to the telescope is the best that German ingenuity could devise, and answers a tolerably good purpose on ordinary occasions, yet it is deficient for our nicer operations. The telescope should, during the nicer process, be propelled with a uniform sidereal motion, in order that the successive rays from the star may fall on precisely the same same part of the plate which is to receive the impression. If this be not the case, the image will be deficient in distinctness of outline and unduly enlarged.

"To effect this, we intend to apply to our great equatorial, a machine which we have devised for the purpose of producing uniform rotary motion, one of which machines is now constructing at the observatory, to be used in connection with the electrographic operations of the Coast Surveys.

"It is our purpose to pursue the subject of daguerreotyping the stars, proceeding step by step from the brighter to those of lesser magnitude.—We do not despair of obtaining ultimately faithful pictures of clusters of stars, and even nubulæ.

"Mr. Whipple, the Daguerreotypist, and his assistants, have cheerfully and perseveringly lent their aid on several occasions during the past and present years, furnishing us plates, apparatus, and valuable time, without charge."

Pennsylvania.

Central Railroad.—The following from the Pittsburgh Gazette shows the progress that is making on the Pennsylvania Central railroad:

We have had the pleasure of an interview with a gentleman who has just passed over the line of the Central railroad, and who has availed himself of rare opportunities of becoming acquainted with the state and prospects of that work, in which we are so deeply interested.

The line from Philadelphia to Huntingdon is in excellent order, and doing a good business, and meeting the expectations of its friends.

From Huntingdon to Hollidaysburg, the line will be finished sometime in the month of September, most probably by the fifteenth, and possibly by the first. They are laying down the rails at four different points, and are thus able to push the work with great rapidity.

There is, therefore, a certainty that by the first of October there will be continuous railroad communications from Philadelphia to Johnstown, using the Portage railroad across the mountains, which is in good order, and has had some new passenger cars placed on it lately. This will render but one transhipment necessary, at Johnstown, and will facilitate our communications with Philadelphia so greatly as to attract a large amount of the approaching fall travel and trade this way.

From Johnstown west to Bolivar, some 22 miles, the work will be finished early next season, and to the Monastery, in Westmoreland county, some time next summer. This brings the road into connection with the southern turnpike.

It is contemplated, also, to build a branch from the line to Blairsville, and it is highly probable that

it will be done next season. This will connect the line with the northern turnpike.

It is not probable that the line will be entirely finished to Pittsburgh, so as to be in continuous use, before the spring of 1852. This is owing to the very heavy work in Westmoreland county.—All the force that can work to advantage is now employed, and the work will be pushed with all the energy possible, but its completion cannot with certainty be calculated on before one year from next spring.

But by means of the canal to Johnstown, we may expect to do a good business, this coming fall, and by means of the canal and two turnpikes, a heavier business the fall succeding.

We presume, however, that the line from this city to Turtle Creek will be finished this fall, or by next spring.

Eight miles of the mountain section, commencing at Johnstown, and going east, have been put under contract. All the work on the western end of the line is being performed in the most satisfactory and durable manner, the streams being crossed by stone arched bridges, and every pains taken to make the work a credit to the State. It will, doubtless, be one of the very best railroads ever built in the country.

New Hampshire.

Sullivan Railroad.—Directors for the ensuing year, William Warner, Burlington, Vt.; Charles Thompson, Charlestown, Mass.; Jabez B. Upham, Boston; Ralph Metcalph, Newport; Henry Hubbard, Jr., Charlestown, N. H.; Aurelius Dickinson, and Wm. Rossiter, Claremont. The board of directors chose Charles Thompson, of Charleston, Mass., President; P. C. Freeman, of Claremont, Clerk, and George Denny, Esq., of Boston, Treasurer.

Maine.

Atlantic and St. Lawrence Railroad.

We copy from the Portland Argus the following condensed account of the operations of this road the past year, with the expenditures upon the same up to July 1, 1850.

The total amount paid and chargeable to construction of road from Portland to Paris Cape, is:

For station houses and depot lands in Portland, & improvements thereon	$172,191 81	
Land damages	36,793 48	
Fencing	20,963 32	
Grading and bridging	591,733 69	
Superstructure	456,484 18	
Office expenses	17,208 38	
Engineering departmnt.	51,518 12	
Corporators' expenses	3,344 60	
Sundry accounts	20,042 28	
		1,370,279 77
Extension of road across the city,		942 70
Interest on loans, being balance of interest account	15,277 37	
Interest on city bonds	26,040 00	
" paid stockholders on stock	97,375 33	138,692 70
Equipment.		
Locomotives	57,973 00	
Passenger cars	20,036 89	
Merchandise cars	52,832 84	
Snow ploughs	1,457 09	132,299 82
		$1,642,214 99
The expenditures on road above Paris, are		108,277 13
Total expenditure		$1,750,492 12

The means of the company, to meet the above expenditure, have been derived from the following sources:

From assess. paid on shares	937,516 05	
Rents and wharfage	2,629 04	
City of Portland loan	653,500 00	
Notes payable	121,480 87	
Company's bonds to contrac	20,000 00	
Suspense account, (embracing assessments not credited	38,866 45	
Net Inc. of road to July 1st	108,970 69	$1,882,963 10

Showing a balance of assets received, of $132,470 98.

The income account of the past year, presents the following results:

Total receipts from passengers	79,148 08
" " " merchandise	56,890 59
" " " mail	3,257 00
" " " Rents and wharfage	1,041 16
" " " for use of cars, etc. on connecting roads	2,694 10
	$143,630 93

The current expenses have been—

For maintenance of way	$12,807 09	
For locomotive power	12,002 56	
For train expenses	14,074 56	
For office establishment.	5,613 76	
For station expenses	6,217 09	
For mail	235 77	
For general expenses	329 34	
For fuel	8,313 52	
		59,593 69
Net receipts for year		$84,037 24
Surplus on hand, July 1, 1849		24,933 45
Net income to July 1, 1850		$108,970 69
The amount of city script is		$675,000
On hand		21,500
		$653,500
The whole number of shares subscribed is $10,189—equal to		$1,018,900 00
Paid in on the above		937,516 05
Leaving a balance due of		$81,383 95

This balance is said to be nearly all available.

Among the expenditures, large outlays have been made in the city of Portland for wharf property and lands adjacent to the depot, for the ultimate use and purposes of the road, but which are not needed to accommodate its business at the present time. Improvements have been made upon this property with a view to make it immediately productive, and the actual cost of that part of it with its improvements, not used for depot purposes, is $60,191 63. Most of it is rented for four years, and the directors reckon its net annual income at $5,000.

The total number of miles run on the road is 109,705. The number of passengers that have passed over the road the past year is 155,256, and the amount of merchandise is 43,058 tons. The average receipts per mile run is $1,41 1-2, and the average expense is 58 1-2 cts., leaving a very large balance to go to the profit account.

The report enters into a full history of the contract between the directors and Messrs. Wood, Black & Co., for the completion of the road from South Paris to the junction at the boundary line. As we have already stated the particulars quite minutely, we deem it necessary only to present the following facts.

The price to be paid is $26,200 per mile, one-half payable in cash, one-quarter part in the bonds of the company on twenty years with semi-annual interest, and one-fourth part in the stock of the company at its par value.

The road is to be finished, 23 miles, to Bethel Hill, by the first day of Dec. next, and to Gorham, in New Hampshire, about 21¼ miles from Bethel on the first day of July next, and to Connecticut river, during the year 1851, and the residue of the distance to the junction at the boundary line in three years from January 8th last; making over 104 miles from South Paris.

The company make the surveys and locate the road; and the depot grounds, outside of the six rods of located lines, and buildings, engine houses, and water stations, and most of the turntables, together with the equipment, are to be furnished by them. $3,000 a mile, or about $300,000 will be required for these expenditures, in addition to the cash payments of Mesars. Wood, Black & Co.

About $1,650,000 will be needed for the *cash* payments towards the final completion and equipment of the road. Where is this to come from?

This question the directors answer. They have an unappropriated balance of city script of $425,000. They expect an additional loan of $500,000 from the city, which, they state, is all that will be ever asked for. Saying nothing of the cash on hand, and assessments still due, these means will carry the company through this year and next safely, and will leave about $700,000 ultimately to be raised. The directors are of opinion that the increasing confindence, that is generally manifested in the productiveless of the road when it shall be opened, (it being by far the shortest and cheapest route between the ocean and the St. Lawrence river, at Montreal,) gives the strongest encouragement that the means can be procured to complete that portion for which no provision is made, without crippling the enterprise by ruinous sacrifices in the way of extra interest or by forced sales of the shares of the capital stock of the company at a depreciated value.

The directors have applied for an increase of the capital stock one million of dollars, making the capital stock of the company forty thousand shares—equal to four million dollars, and the Legislature have granted this increase.

The road is mostly graded and ready for the rails to Bethel, and the track is being laid.

A contract has been made by the contractors for 5,000 tons of rails, sufficient to lay the track to Gorham, of which about 1,200 tons have arrived. The contractors are making such progress in the execution of their work, that there is very little doubt of their ability to complete the road within the time specified in their contract.

Every exertion will be made, if the means are provided by the additional loan of the bonds of the city of Portland, to the amount asked for, to have the road opened to the valley of the Connecticut river during the ensuing year.

On the Canadian side seventy miles of the road will be in operation by November.

The directors state that the building of Commercial Street will cost about $100,000, of which $50,000 is to be paid by the Portland, Saco and Portsmouth road in their stock, and the other moiety by the At. and St. L. road.

The following persons were chosen directors for the ensuing year:

Josiah S. Little,
John B. Brown,
St. John Smith,
Eliphalet Greely,
Wm. W. Thomas,
John Anderson,
Ezra F. Beal,
James L. Farmer,
Wm. P. Fessenden,
Thomas Hammond,
Solo. H. Chandler,
Samuel Jordan.

A DETAILED STATEMENT OF THE CHARCOAL FORGES IN EASTERN PENNSYLVANIA IN 1850.

County.	Sold by Sheriff, or failed, and date.	Kind of power used and No.	Date of construction.	Name of works.	Situation, P.O.	Owners.	Lessees.	No forge fires.	No. hammers.	Largest product. Blooms. Tons.	Largest product. B. fr. Tons.	Actual make 1849 Blooms. Tons.	Actual make 1849 Bars. Tons.	No. of persons employed.	No. horses, etc. employed.	Market*	Run out fires.
Bedford,	1847 S	Water	1800	Hopewell,	Hopewell,	McDowell, Benedict and others,		4	2	175	75			30	15	H & E	1
"	1848 S	"	1808	Lemnos,	"	Thomas King & Co.		4	2	50	200			39	12		1
"		"	1813	Bedford,	"	Swope. King & Co.		5	2	120	281			45	20	H & W	
Berks,		"	1788	Rockland,	New Jerusalem,	Abm DeTurck,		1	1		61		30	8	3	H	
"		"	1803	Dale,	Dale,	David Schall,		3	2	100	104	15	95	16	11		
"		"	1799	Mount Pleasant,	Dale,	A. B. Bechtel,		2	1		95		95	14	8		
"	1842 S	"	1837	Franklin,	Reading,	J. & H. Thompson,		2	1	230		150		14	8		
"	1848 S	"	1770	Green Tree,	"	John W. Buckhart,		2	1		250			18	10		
"		"	1836	Exeter,	"	Moyer & Yocum,	G. Moyer,	2	1	270		270		20	12		
"		"	1830	Bloom,	Dale,	Horatio Trexler,		2	1		100		100	15	5		
"		"	1797	District,	Pike Township,	"		2	1		150	150		16	6	E	
"		"	1780	Birdsboro,	Birdsboro,	E. & G. Brooke,		3	1	225		150		20	6	H	
"		"	1780	Oley Forge,	Oley Township,	Jacob S. Spang,		2	1	200		200		20	12	H & E	
"		"	1825	Dowell,	Robeson,	Jonathan Seidel,		2	2		350		200	20	12		
"	1842 F	"	1749	Charming	Furnace,	H. P. Robson & Co.		5	2	750		750		50	20	E	1
"		"	1830	Northkill,	Schattlesville,	Joseph Seyfert,		2	1	250		200		30	12		
"		"	1840	Mount Airy,	"	"		2	1	250		200		30	11		
"		"	1809	Speedwell,	"	Nicholas Yocum,		2	1	80	50	60	48	20	6	H & E	
"		"	1825	"	"	Daniel Yocum,		2	1		60		56	20	6		
"	1842 S	"	1790	Rockland,	Rockland Township,	Wm. Herbst,		2	1	150		150		16	6	H	
"		"	1795	Spring,	Earl "	Bertolet heirs,	Jacob Snell,	3	2	221		152	50	15	5		
"		"	1800	District,	Pike "	Jacob Deysher,		2	1	150		90		16	4		
"		"	1814	Union,	Albany "	George Reagan,	W. & J. Regan,	2	2		80		25	10	8		
"		"	1846	Gibraltar,	Robeson "	H. A. Seyfert, McIlvaine & Co.		4	2	600		226		26	18		
"		"	1828	Maiden Creek,	Hamburg,	George Merkel,		2	1		100		60	16	11		
Blair,		"	1833	Antes.	Birmingham,	G. McCamant,		3	1	416		410		30	18	E & W	
"	1849 F	"	1833	Cold Spring,	"	John Kratzer,		3	1	434		175		25	20	W	1
"		"	1813–1804	Tyrone, 2 forges,	"	Lyon Shorb & Co.		12	3	1543		1543		60	30		1
"		"	1828	Franklin,	Williamsburg,	D. H. Royer,		4	1	600		600		30	15		1
"	1850 F	"	1805	Etna,	Yellow Springs,	Spang, Keller & Co.		4	1	800		600		30	6		1
"		"	1810	Cove,	Williamsburg,	Royer & Schumucker,		3	1	600		400		30	22		1
"		Steam	1839	Portage,	Duncansville,	Royer, McNeal & co.	Royer & Mc Neal,	3	1	400		300		10	2	E & W	
"		Water	1816	Maria, 3 forges,	"	Dr. P. Schoenberger,		13	3	1800		1800		60	50	W	1
"		"	1836	Alleghany,	"	"	E. H. Lytle,	4	1	600		600		75	16		1
"	1850 S	"	1837	Gap,	E. Freedom,	B. F. Schoenberger,		5	1	500		400		35	26		1
"		"	1830	Mary Ann,	Antestown,	John Bell,		4	2	500		400		20	14		1
Carbon,		"	1820	Ashland,	Lehigh Gap,	J. J. Albright,		2	1		100		100	12	7	H	
"		"	1828	Pennsville,	East Penn,	S. Balliet & co.		4	2		210		50	24	4		
Centre,		"	1795	Bellefonte,	Bellefonte,	Valentines & Thomas,		5	1	600		600		21	18		
"	1850 F	"	1792	Rock,	"	Samuel Edmiston,		4	2	400		400		15	6	E	
"		"	1800	Milesburg,	Milesburg,	Irvin, McCoy & co.		5	1	600		400		30	24	H	1
"	1843 F	"	1811	Eagle,	"	C. & J. Curtin,		7	1	750		466		21	8		1
"		"	1840	Howard,	Howard,	Irvin, Thomas & co.		2	1	300				10	6		
Chester,		"	1847	Greenwood,	Penningtonville,	M. B. & G. W. Buckley,		3	1	350		350		20	12		
"		"	1792	Hibernia,	Wagontown,	Charles Brooke,		3	1	400		300		16	18		
"	1848 S	"	1806	Pleasant Garden,	N. London X Roads,	Ellis P. Irwin,		4	1	600		250		30	12		
"		"	1785	Mary Ann,	Downingtown,	Wm. Dowlan,		3	2	386		386		22	12		
"		"	1750	Coventry,	Pottstown,	George Christman, Sr.	Christman & Brother,	3	1	325		325		18	6		
"		"	1790	Springtown,	Brandywine Manor,	John B. Cristman,	Christman & Irey,	3	2	325		325		20	10		
Clinton,		"	1837	Washington,	Nittany,	John Henderson,	W. Morris & co.	4	3	500		450		30	6	E	
Columbia,	1847 S	"	1824	Catawissa,	Maineville,	G. & R. Shuman,		3	2		100		70	25	6	H	
Cumberland,	1837 S	"	1830	Laurel,	Carlisle,	Wm. M. Watts,		5	2	500	250	265	127	45	13	H & E	1
"	1847 S	"	1811	Carlisle,	"	Peter F. Ege,		4	2		280		250	36	4	H	
"		"	1790	Liberty,	Lisburn,	H. G. Moser,		5	2	550	30	520	30	25	13	E	
Dauphin,		"	1830	Oakdale,	Elizabethville,	S. & W. Sawyer,		5	2	340	50	340	50	25	12	H	
"		"	1850		Dauphin,	Longnecker & Snyder.		3	1					20	8		

A DETAILED STATEMENT OF THE CHARCOAL FORGES IN EASTERN PENNSYLVANIA.—(Continued.)

A DETAILED STATEMENT OF THE CHARCOAL FORGES IN EASTERN PENNSYLVANIA,—(*Continued.*)

County.	Sold by Sheriff or failed, and date.	Kind of power used.	Date of construction.	Name of Works.	Situation, P. O.	Owners.	Lessees.	No. forge fires.	No. hammers.	Largest product. Blooms. Tons.	Largest product. Bars. Tons.	Actual make, 1849. Blooms. Tons.	Actual make, 1849. Bars. Tons.	No. of persons employed.	No. horses, etc. employed.	Market*	Run out fires.
Franklin,	1849 S	Water	1846	Carrick,	Fannettsburg,	N. Kelley,	Witherow & Walker,	2	1	25	75		75	10	3		1
"		"	1790	Soundwell,	Roxbury,	Schaeffler & Fleming,		3	2		90		90	10	6		
"		"	1834	Northeast,	Louden,	John Beaver,	Lewis & Bros.	2	1		40		32	13	4		1
"		"	1804	Valley,	"	"	Scheffler & Son,	2	1		50		50	15	6		1
"		"	1832	Warren,	Sylvan,	Bowers' heirs,		3	1	100	50			15	4	H & E	1
"	1842 F	S&W	1805	Montalto, 2 forges,	Montalto,	H. & H. Hughes,		7	2	300	200	300	200	150	30	H	1
"		Water	1830	Caledonia,	Grafenburg,	Thaddeus Stevens,		4	3	28	217	30	200	28	6	H & E	1
Huntingdon,		"	1837	Juniata,	Alexandria,	S. Hatfield & Son,		4	1	600		600		20	8	H	2
"	1848 S	"	1800	Barre,	"	Joseph Green & co.		6	2	900		700		40	18	E & W	1
"	1840 F	S&W	1832	Savage,	Paradise,	John Savage,		8	2	500				50	20		2
"	1848 S	Water	1842	Malinda,	Orbisonia,	Blair & Madden,		4	2	250	75			20	12	E	
"	1850 S	"	1804	Jnniata,	Shaver's Creek,	E. F. Shoenberger,		6	1	900		475		30	14	W	1
"	1849 S	"	1830	Rebecca,	McElavey Fort P. O.	A. G. Curtin,		3	1	200				27	10	E	
"		"	1805–1809	Coleraine, 2 forges,	Coleraine forge,	Lyon, Shorb & co.		7	3	1031		1031		45	30	W	
"		"	1826	Elizabeth,	" P. O.	Martin Gates,		2	1	300		40		20	12		
"	1848 S	"	1831	"	Water street,	Isett & Harnish,		3	1	450		450		20	12		1
"		"	1936	Stockdale,	Spruce creek,	E. B. Isett,		2	1	305		305		10	7		
Lancaster,		"	1797	Brooke,	Gap,	George W. Buckley,		3	1	300		100		30	8	E	
"		"	1725	Windsor,	Churchtown,	David Jenkins,		4	2		250		125	30	18	H	
"	1850 F	"	1750	Poole,	"	Benjamin Jacobs,	Jamison & Sheaff,	3	2	300		200		25	12	E	
"		"	1793	Spring Grove,	Goodville,	S. Jacobs' estate,	J. & R. S. Potts,	4	2	556		556		29	18		
"		"	1750	Speedwell,	Brickerville,	R. W. Coleman,		3	1		280	300		30	12	H & E	
"		Steam	1850	Lancaster,	Lancaster,	George Ford,		2	1					8	2		1
"		Water	1828	Colemanville,	"	R. & G. D. Coleman,		4	2	640		564		25	12		1
"		"	1755	Martic,	"	"		3	1	644		497		40	20		1
"		"	1830	White Oak,	Oak Hill,	James Sproul's heirs,	John Alexander,	3	2		230		209	25	12		
"		"	1838	Pine Grove,	"	Enos Pennock,		3	2	400		346		20	18		
"	1842 S	"	1810	Ringwood,	Christiana,	James Sproul's heirs,	Charles Cloud,	3	2	305		305		20	12		
"		"	1810	Sadsbury,	"	"	George Steel,	4	2	150	200	150	200	30	16		
Lebanon,		"	1845	Union,	Jonestown,	J. B. Wideman,		4	2		150		150	35	12		
"		"	1795	New Market,	Anville,	Jacob Light,	Longnecker & Early,	5	2	225	125	225	125	45	13	H	
"		"	1836	Monroe,	Fredericksburg,	Jonathan Seidel,	Seidel & Thompson,	3	1	300		300		40	12	H & E	
Luzerne,		"	1824	Nescopeck,	Berwick,	George Westler,		4	2		200		100	25	12	H	
Lycoming,		"	1828	Heshbon,	Newberry,	Wm. McKinney,		2	1	300		100		20	12		
"		"	1830	Hepburn,	Trout Run,	A. D. Hepburn,	John Essington,	3	2		140		100	15	4		
"		"	1831	Pine creek,	Jersey Shore,	J. Vickers,		4	2	100	200			32	12		
Mifflin,	1847 S	"	1810	Freedom,	Lewistown,	John A. Wright & co.		6	2	521		521		50	32	E	
"	1849 S	S&W	1838	Brookland,	Waynesburg,	H. N. Burroughs,		6	1	950				45	12		1
Montgomery,	1847 F	Water	1750	Glasgow,	Pottstown,	Rittenhouse & Schall,	H. Potts & co.	3	2	400		205		25	10	H	
"		"	1733	Green Lane,	Sumneytown,	Wm. Schall,		3	2	140	100	80	50	30	9	H & E	
Northumberland		"	1844	Paxinas,	Paxinas,	Leisenring & Wolverton,		2	1	250		200		20	6		
Perry,	1847 S	"	1829	Fio,	Duncannon,	Robert J. Walker,		5	2	500				50	20		
Philadephia,		"	1850	Flat Rock,	Manayunk,	M. Bubkley & Sons,		3	1					25	10	H	
Schuylkill,		"	1801	Schuylkill,	Port Clinton,	John Schall,	Schall & Taylor,	5	2	283		251	32	35	12	H & E	
"	1844 S	"	1828	Susanna,	"	John Raush,		3	2	200				30	10		
"	1841 S	"	1816	Brunswick,	"	Koch, Hammer & Huntzinger,	George Focht,	2	1		60		30	20	8	H	
"	1842 S	"	1828	Hecla,	"	Young & Jones,		3	2		150		102	30	10		
"	1840 S	"	1830	Mount Vernon,	"	Ludwig & Ege heirs,		2	1		100			20	8		
"		"	1826	" Hebron,	Barry,	John B. Otto,		3	2		250		250	50	25		
Union,	1848 S	"	1827	Berlin,	Hartleytown,	C. & C. Brooke,		4	2	300				50	20	E	
York,		"	1810	Castlefin,	Castlefin,	R. W. & W. Coleman,		3	2	150	250	150	200	45	24	H & E	
"		"	1770	Spring,	Spring Forge,	"		2	2		223		190	40	25		
"	1842 S	"	1828	Woodstock	Margaretta,	Hahn & Hines,	Curran, Himes & co.	3	2		200			45	24		
	35							389	168	32737	6880	24349	3946	3065	1377		31

* In the column head "Market"—E means Philadelphia; W means Pittsburgh; H means the interior, either at the works or to the country trade.

AMERICAN RAILROAD JOURNAL.

Saturday, August 10, 1850.

Great Work on Bridge Building, etc., etc.

JUST published in medium folio, One Dollar, 75 cts. to subscribers.

Part I. of a "THEORETICAL AND PRACTICAL TREATISE ON THE CONSTRUCTION OF BRIDGES IN STONE, IRON AND WOOD," By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, sections, and centering, of the Bridge of St. Maixence, France, by M. Perronet, the eminent Architect and Engineer, and plans, elevations, sections, and details of the oblique Timber Bridge, 700 ft. long, constructed for a double track across the River Tyne, on the line of the Newcastle and Carlisle railroad, by John Blackmore, C. E., with an introductory article on the relative merits of the various materials employed in the construction of Bridges, as regards economy, strength and durability, and critical remarks on the various forms of bridges designed and constructed by the most eminent architects and engineers in Europe and America.

"PART VI. of Specimens of the Stone, Iron and Wood Bridges, etc., etc., of the United States Railroads," By George Duggan, Architect and Civil Engineer, contains specimens of the plates and letter press intended for the APPENDIX, being the commencement of a complete Treatise on the Theory and Practice of Bridge Building. This will be one of the most valuable works on the subject ever presented to the attention of engineers in this country—condensing the most important information on this branch of architecture contained in the writings of the most eminent scientific men in the French, German, Italian, and English languages, in the course of the last and present century. It will be illustrated by numerous accurate representations of bridges of the greatest celebrity in modern times. Elaborate articles will be given on the strength, property, and uses of the different materials employed, and on the most approved methods of constructing Coffer Dams, Foundations, Centering, etc., with descriptions and drawings of the various engines and Machines tha were found most useful in constructing the works, and a selection of such specifications as may be of service to the practical bridge builder. The sixth number treats of the Application of Iron to Railroad Structures, and is illustrated by beautiful drawings of the Bridge across the Delaware at Saw Mill Rift on the Erie Railroad, and of the bridge over Fairfield street, on the Manchester and Birmingham Railroad. The great success of this work thus far is the best tribute to its scientific merit and its adaptation to the wants of the American engineer."—[New York Daily Tribune, June 28, 1850.

Published by George Duggan, 300 Broadway, New York, to whom all communcations should be addressed and subscriptions forwarded.

☞ Parties remitting Mr. Duggan $5 and the remainder $4 when they have been supplied with the first six parts of the "Theoretical and Practical Treatise on Bridge Building, etc.." shall receive it monthly as published. To those making Mr. Duggan a present remittance of $9, the work will be forwarded post free to any part of the United States.

Faggotted Car and Engine Axles

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These Axles enjoy the highest repulation for excellence, *and are all warranted.*

Railroad and Mathematical Instruments.

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Manassas Gap Railroad.—The President and Directors of this company have selected John McD. Goldsborough, Esq., as their Chief Engineer. Mr. G. was the Chief Engineer engaged in the construction of the York and Cumberland Railroad, and his success in that undertaking proved him to be a gentleman of high scientific and practical attainments.

European and American Railroad.

Under the above title, we give the final proceedings of the great convention recently held in Portland, for the purpose of establishing a new line for travel between this country and Europe, by extending a line of railroad to the eastern part of Nova Scotia, thence by steamer to Galway Bay, Ireland, and thence by railroads and steamboats to London and the Continent. This idea, though of very recent date, commands universal attention, and we think we may say universal approbation. This favorable reception is based upon the merits of the scheme, and not upon the efforts of interested parties who have ends to accomplish, irrespective of public convenience. By the proposed route, the sea voyage can be reduced one-third, and the gain is the difference in time by which a distance of one thousand miles can be run by a locomotive or steam ship. At the rate of 14 miles per hour a steamship will make this distance in three days, and a locomotive at the rate of forty miles, in one. If, therefore, the voyage to Europe can be shortened two days, a case, as lawyers say, is made out. The saving to be made warrants the outlay, and the opening of the new line is justified as a business and commercial undertaking upon this basis alone. By shortening the time, the expense would be diminished. This would therefore become the cheapest, as well as the line of convenience. The great increase of travel between this country and Europe will soon require the sailing of a steamer daily, the passengers of which would alone support the road. In addition to convenience and greater speed in travelling, the importance to the commercial world of abridging by two days the time it now requires to transmit intelligence from one commercial hemisphere to another, will vastly outweigh all considerations of the cost of the work. We have good reason to expect, therefore, that not only those travelling on business and pleasure, but also the commercial world will demand its construction as one of its most important instruments in the operations of business.

It is also a very important local work. The trade of the Provinces of New Brunswick and Nova Scotia naturally belongs to the United States. They are unequalled in resources by any State in the Union. The business relations which subsist between them and this country will alone give a very large business to a road. We think, therefore, that it can be very easily shown that the proposed line, as far as this country is concerned, would be a paying one, and that no objections exist against its construction on this ground. The great difficulty in its realization will be to obtain the means to build it.

If the scheme carries with it universal conviction of its importance, this very conviction will secure the means. The commercial world must build it as a matter of economy. Business men cannot afford to be without it. It is necessary, just in the way that steamboats are necessary. We therefore have a right to calculate upon aid to it, from its very importance, just as we see that a similar reason is opening several routes across the Isthmus of Panama. This sentiment as yet is inchoate and unorganized. It must soon take shape and proportion, and express itself in action.

In the Provinces another view of the importance of the work will secure its construction there. The Provinces feel that a crisis has arrived in their history, that an effort must be made to check the downward tendency of all their interests, and, that unless some remedy is applied, they never can recover from the disastrous state of things that now exists They have looked for their salvation to the Halifax and Quebec railroad—a road, which, if built, would only have increased their embarrassments. This project is now happily given up. All that the provinces need to restore to them their former prosperity is free trade and means of easy intercourse with the United States. This road will in the outset accomplish a part and probably the whole of this great desideratum. This is the view now taken of this project by the Provincials. They are fully alive to its importance, and they are prepared to make any sacrifice for the success of this great work. Provincial guarantee will make up what is lacking of individual subscription, and we entertain no doubt that as far as the Provinces are concerned, the means will be forthcoming, as fast as they can be judiciously expended. For that portion of the line in Maine we cannot see our way so clear. In the Provinces the subject of railroad construction has long engrossed the attention of the inhabitants. They have accomplished nothing, through the fault of their scheme. A suitable one is now provided, and they have only to transfer to it the interest excited in favor of another, and go to work. From Bangor to the State-line the means for the work must come mainly from abroad. How readily they will be furnished we have not had sufficient time to see. Public opinion has not yet organized and matured itself. But as we said before, we believe the scheme well and substantially founded. If such be the fact, means can be obtained from the proper sources as soon as wanted.

As a railroad convention it was altogether the most imposing one ever held in this country. As a grand demonstration, it is well calculated to arrest attention. The speeches of those present and the letters of gentlemen invited to attend, showing a thorough and full appreciation of the importance of the work, furnish the best evidence in the world of the soundness and practicability of the scheme. It is one of those great projects commanding an universal assent, which is sure in the end to write itself in *legible lines.*

The Remington Bridge.

[The following article was crowded out of our last paper by other matter.]

We were free to express our opinion of Mr. R.'s bridge, because opinion could do him no injury. Its success is to be a matter of experimental demonstration. Any opinion of our own cannot change the quality of the materials used. With a strong wish that his bridge may prove to be all he claims for it, we still are unable to change our opinion, or to find any reasons in his articles for doing so.

Our authority for saying that Mr. R. made use of the *Truss* in his *practical* bridge, is the gentleman exhibiting his model in New York. We suggested as an objection the great oscillatory and undulatory motion of the bridge; and he informed us that this was obviated in the bridges for use by means of the truss, as stated; this appeared to us to be a great improvement, and to obviate one great objection to the bridge. It was this very oscillatory motion that caused the bridge to break a few days since, as a party of gentlemen were passing over it. It threw the load upon one of the outside chords, which failed, and precipitated the whole party to the floor. This accident was caused by this oscillatory motion, which Mr. R. says his *bridge is entirely free from.* We certainly cannot tell what he means by this statement, as exactly the opposite is the fact, as any one can readily see.

His bridge being constructed with the least amount of material, will be the most undulatory bridge used.

If Mr. R. dispenses with the truss, then his is simply a wooden suspension bridge—the strength of it depends entirely upon the strength of the wood used. Now, Mr. R. has made no new discoveries in the strength of woods; that of the various kinds was determined by actual experiment long before he was born. If he claim any new discoveries here, or if he claims to subject wood to any different strain from what it is subjected in all bridges of long spans, he claims something to which he has no right. The strength of a truss bridge depends mainly upon the strength of its bottom chord, and the more perfectly this maintains a right line, the stronger the bridge. To ascertain the strength of a Remington bridge, a person has only to turn to tables of the strength of materials, found in all books on engineering, and there ascertain the strength of the wood used; and by deducting the weight of the bridge, he has its capacity to sustain a load. Mr. R. has thrown no new light upon this subject; nor are we the wiser for any thing he has done. Mr. R. claims that he has established this new principle in mechanics, that "the tensile strength of timber when in nearly a horisontal position, is made to sustain nearly the entire weight necessary to separate the fibres." This truth is as old as the hills. It is affirming a self-evident proposition. It reminds one of the schoolmen's definition of light. "Light," said they, "is being perspicuous as far forth as perspicuous." This new principle of his *is* applicable to suspension bridges, and is the very one upon which they are constructed. All the material used is made a sustaining power. Is Mr. R. familiar with the principle upon which all bridges are constructed?

Again, Mr. Remington claims that his own bridge is as much stronger than iron, as 14 is to 9! His model, with three stringers, sustained a weight of 14 tons. He says that a bar of the best charcoal iron, one inch square, will sustain only three tons, and refers to Telford for authority.—We have examined Telford's tables, and find that he gives 29 2-3 tons as the strength of a bar of iron one inch square! A bridge, therefore, upon the authority of Telford, with iron stringers or chords in the place of wood, would sustain 89 tons. The relative strength, therefore, of wood and iron suspension bridges, with stringers or chords of the same size, is as 89 to 14. These results agree very nearly with the experiments of other distinguished engineers. See Weisbach's Mechanics', page 387, and Whittington's Engineering, page 409. We are certainly astonished to see a man coming forward at this late day, and claiming that wood is stronger than iron; or that he has discovered some new quality in the strength of the former.

While upon this subject, we cannot help giving to new discoverers a word or two of advice, (which we think Mr. Remington has never followed.)—After they have made a great discovery, let them keep it entirely to themselves, and immediately go to work and see if some one has not anticipated them in the same thing. In nine cases out of ten will they find this to be the case. Some wiser, older, and more industrious head has got the start of them. Having said nothing about their discovery, they are saved the mortification of claiming as new what is already in existence, and the expense of patenting and bringing into notice what is worthless. Every day brings out something new and valuable, but where there is one prize a million blanks are drawn. What immense sums are annually paid into the Patent office to secure worthless patents, and what an immense amount of labor and how many anxious hours are thrown away for the want of a proper knowledge as to what has been accomplished, and what is valuable in the mechanic arts.

It will do very well to claim as valuable an article when its quality never can be tested. The imagination may be strongly affected by reading the certificates of the wonderful cures effected by Dr. Townsend's sarsaparilla. The person buys and drinks, and is effected through the imagination, where probably is the seat of the disease. This is the grand secret of the success of all the great healing nostrums of the day. But when you come to deal with the natural laws of gravity and attraction, it is a very different affair. These are inexorable, and cannot be changed by the imagination or the will. They are not the subjects of opinion, but of experiment, and he who affirms anything of them not already established by experiment, goes beyond his province, and becomes a charlatan, and not a discoverer. Let Mr. Remington take the right ground, and claim as new only what he is entitled to; let him exhibit his models, which are certainly very pretty things to look at, and make in this way all the money he can, and we will give him a helping hand; but when he comes before the world as a great discoverer, he will find that this title will not be recognized, and he must not complain if people point out to him his proper position.

New Hampshire Railroad Law.

New England still indulges in her long cherished habit of over legislation, in spite of the ridicule it so often provokes from the rest of the Union.

By an act lately passed by the Legislature of N. Hampshire, in amendment of the laws in relation to railroad corporations, the 1st section prohibits the issue of free tickets save to persons travelling on business in connection with the road, and to persons poor or in misfortune. If the Legislature aims to govern the operations of their railroad companies thoroughly, why does it not specify the style of rails, locomotives, cars, depots, etc., that each company should adopt; the number of trains to be run, speed to be maintained, hours of starting, rates of fare and freight, salaries of officers, etc.? The clause qualifying persons poor or in misfortune to receive free tickets is in accordance with the true spirit of Christianity, were it not made void by the necessity imposed upon the applicant of proving to the satisfaction of the Legislature his qualification. The president and officers of the company may be well convinced that a poor man who wishes to go by the next train to meet his dying wife or daughter is qualified to go free; but the applicant must stay and prove his qualification, and in the meanwhile his wife or daughter dies.

Sections 2d and 3d are if possible more absurd than the 1st section. They seem to be founded on the absurd fact that the people of New Hampshire in general, and railroad companies in particular, do not know how to manage their own business; and the "modus operandi" of getting the fare from passengers and punishing officers who do not collect the fare is noted most minutely.

Section 7th values a man's life at $500 to $5,000 and *no more*. A wife may therefore get somewhere between the above sums by having her husband killed on a railroad; the market price of the victim to be determined doubtless by reference to some ingenious human life tariff invented solely for the use of the company.

Vermont.

Passumpsic Railroad.—The annual meeting of the stockholders of the Passumpsic railroad was held at White River Junction on Wednesday last.—There was quite a full attendance. The annual report was read and accepted, and the following named gentlemen elected as board of directors for the following year:—E. Fairbanks, Josiah Stickney, Wm. Thomas, Addison Gilmore, Wm. T. Weld, B. B. Mussey, Fitzhenry Homer, Oliver Dean, Emmons Raymond, Asa Low, Joseph Sawyer, Elijah Cleveland, L. H. Deland, J. C. Lee, Arthur Latham.

Maine and Nova Scotia Railroad Convention.

The second and third days of the Convention were chiefly taken up in listening to the speeches of several gentlemen, discussing the subject in all its relations. It was addressed by Messrs. Perley, Fisher, Wright, McFarland, Wilmot, Binney, Fairbanks, Chandler, Baird, and Gray, of New Brunswick; Uniacke, Dickey, Johnson, Pryor, and Fraser, of Nova Scotia; Dearborn of Mass.; F. O. J. Smith, J. S. Little, I. Washburn, N. Smith, and G. T. Shepley, of Maine. The great object of the speeches, particularly those of the speakers from the Provinces, was to show the capacity of that portion of the line to support a Railroad. That the natural resources of the lower British provinces is unsurpassed, is well known; they have coal and iron in abundance, and fertile soil and unrivalled commercial advantages. Their delegates were gentlemen thoroughly conversant of all these resources; and a great mass of useful information was laid before the meeting.

The Hon. Mr. Wilmot then submitted the following resolutions, which were unanimously adopted:—

Resolved, That the spirit of the age and the progress of the modern improvement, demand the most rapid and certain means of intercommunication between the people of the old world and those of the new.

Resolved, That this object can be best effected by the construction of a line of railway, leading from the great seats of population and business in the United States and Canada, through Maine and the Province of New Brunswick to some convenient port on the Atlantic coast of Nova Scotia.

Resolved, As the firm and deliberate opinion of this convention, that the time has arrived when the construction of such a line of railway shall be commenced, and that it shall be designated THE EUROPEAN AND NORTH AMERICAN RAILWAY.

Resolved. That this great railway, connected as it will be with ocean steam navigation and the railway systems of the whole of Europe and America, which traverse empires, kingdoms, colonies and states for the advantage of all, deserves to be regarded, not by the commercial world alone, but by the Statesman, the Lawgiver, and the Philanthropist, as one of the greatest links in that mighty chain which is fast encircling the whole earth, strengthening the bands of brotherhood and Christian fellowship, multiplying the ties of lineage, and bidding fair to constitute of all mankind, but one great commonwealth of nations.

Resolved, That a network of railways now overspreads a great portion of the United States and Canadas, and extends from the far west to the valley of the Kennebec in one unbroken and continuous line, it is expedient that the European and North American railway should consist of an uninterrupted line of communication by land from the valley of the Kennebec eastwardly through New Brunswick to the eastern coast of Nova Scotia, from whence the ocean may be crossed by steamships to the western coast of Ireland, as the shortest ferry across the Atlantic.

Resolved, That as a means of communication for all time between the nations of Europe and the whole of North America, the railway should be built in a durable and substantial manner.

Resolved, That by shortening the time of transit across the Atlantic Ocean by at least one-third the entire business travel between Europe and America will be eventually drawn over this line of railway.

Resolved, That the through business which the proposed line of railway must command, independently of way and local traffic, will render it a most profitable undertaking and cause the commercial value of its stock to be equal to that of any railway in the world.

Resolved, That from the valley of the Kennebec in Maine to the eastern terminus on the Atlantic coast of Nova Scotia, the proposed line of railway will traverse a country abounding in natural resources and possessing all the elements of wealth and commercial greatness in an unusual degree; that although now sparsely populated, this line of country under railway influence will soon become densely peopled, and every species of industry will be called into existence among its inhabitants.

Resolved, That this railway demands for its completion, the united and vigorous action of citizens of the United States—of all British subjects—and of all who desire to promote agriculture, commerce, manufactures, and the progress of the arts and sciences in connection with the firm establishment of peace and good will upon earth.

Resolved, That the State of Maine, and the provinces of New Brunswick and Nova Scotia shall be called upon to grant concurrent charters for the incorporations of companies to construct the proposed railway from the valley of the Penobscot to the eastern terminus of Nova Scotia.

Resolved, That in addition to individual subscriptions for shares in the proposed companies, the aid of the public resources of Maine, New Brunswick and Nova Scotia, shall be solicited to the extent of one-half the cost of this line of railway; that grants of the public lands near the line shall also be asked; and that the Province of Canada shall also be solicited to contribute toward the construction of a work of such great importance to its public and private interests.

Resolved, That a special appeal shall be made to the stockholders of all railroads between New York and London, for aid to this railway, which to them will be of much pecuniary advantage, by promoting an endles stream of travel and traffic.

Resolved, That application shall be made to the governments of Great Britain and the United States respectively, for conditional contracts for transporting the European and North American Mails over this railway, for a long period, at remunerating rates.

Resolved, That the Legislature of Maine now in session, shall be called upon to grant a charter forthwith for the incorporation of a company to construct that portion of the line between the valley of the Penobscot and the eastern boundary of the State.

Resolved, That a Central Executive Committee of seven shall be chosen for carrying out the various measures indicated in the foregoing resolutions, and effecting such other objects as will best ensure the speedy commencement of the work.

Resolved, That, in order to facilitate the progress of the work, the members of the central committee be requested to correspond with the local committees to be appointed along the proposed line.

Resolved, That the proceedings of this convention shall be carefully and authentically drawn up and published in convenient form for general circulation in Europe and America.

To the fifth resolution, Hon. Mr. Johnson offered the following, by way of amendment:—

Whereas several routes have been suggested for the proposed railroad through the Province of Nova Scotia, and it is desirable that the most certain information within the means of the convention should be obtained before the particular line be selected in an adventure of such magnitude,

Resolved, Therefore that a committee be appointed of gentlemen of the United States uninterested in any of the local considerations that affect the inhabitants of New Brunswick and Nova Scotia in the question indicated in the above whose office it shall be personally to inspect the different routes proposed for traversing Nova Scotia with the following objects concerning each specially in view.

The distance and time of transit by each—the physical advantages and disadvantages; the population, resources, und nature of the country, including the means of providing for the work; the probable and way passage and traffic and the amount of subscriptions from the inhabitants that might be justly relied on; and most particularly the general cost of raising the necessary funds within a reasonable period, and the time when the undertaking may be brought into effective operation by each route.

And that the committee report on these and other points of comparison which they may deem important as respects each line, to the Standing Committee, and such report finally to determine the route to be accepted as final, by Maine, N. Brunswick and Nova Scotia.

This amendment was rejected.

The proceedings of the Convention were characterized by the greatest enthusiasm, and the most cordial good will—the representatives of different communities and different interests, all uniting, with the most fraternal feelings, to promote an object, the influences of which they believed, are to reach far beyond themselves—and are to confer a boon upon the race. It was this idea which gave a distinctive character to the Convention, and to this it owed the harmony and good feeling which prevailed. At the close of the proceedings, the Hon. Mr. Gray, of New Brunswick, then offered the following resolution, which was unanimously adopted:—

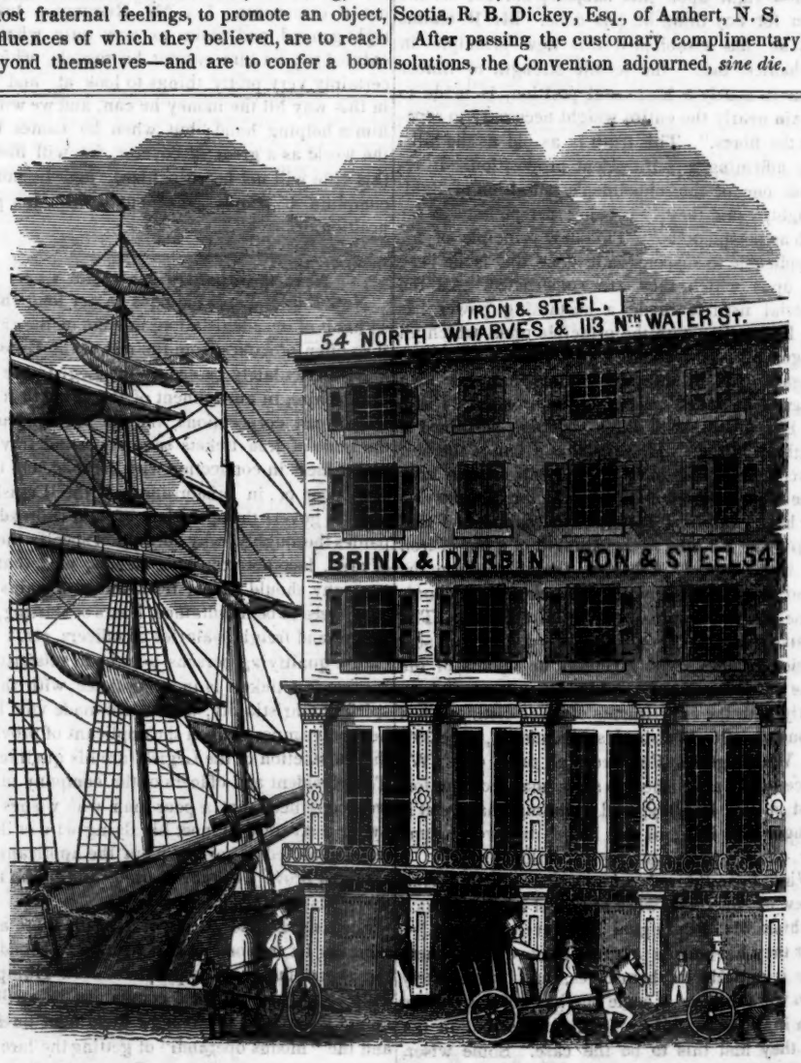
Resolved, That the thanks of this convention are justly due to John A. Poor, Esq., of Portland, for his unwearied zeal, untiring perseverance, and judicious exertions in the preliminary arrangements, the organization, and the happy and successful management of this convention.

And further Resolved, That the thanks of this convention shall be and are hereby publicly and heartily tendered to the said John A. Poor, Esq., for his most valuable services in this important and most interesting occasion.

The executive committee contemplated in the seventeenth resolution, was then appointed as follows:—

John A. Poor, of Portland, Anson G. Chandler, of Calais, Elijah L. Hamlin, of Bangor, George Bottsford, of Fredrickton, N. B., Robert Jardine, of St. John, N. B., Hon. Mr. Uniacke, of Nova Scotia, R. B. Dickey, Esq., of Amhert, N. S.

After passing the customary complimentary resolutions, the Convention adjourned, *sine die*.



To Merchants, Railroad Companies, Machinists and Boiler Makers.

THE subscribers beg leave to call attention to their very large stock of *Iron* and *Steel*—of American, English, Swede and Norway make—of all the different kinds in use. Also, Railroad Iron, Ship, Boat and Railroad Spikes. They are also Agents for the *Best Pennsylvania Locomotive Boiler and Tank Iron*, each sheet of which will be *stamped and warranted*, at lowest mill prices. Our prices for all kinds of iron will be found *very low*, either for cash or approved credit.

BRINK & DURBIN, *Philadelphia.*

Great American Engineering

AND MECHANICAL WORK, just published in medium folio One Dollar, 75 cts. to Subscribers.

Part VII of "Specimens of the Stone, Iron & Wood Bridges, Viaducts, Tunnels, Culverts, &c., &c., of the United States Railroads." By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations, sections and details of the elegant timber Bridge, (Burr's Patent,) 150 feet span, across Salmon River, Malone, on the line of the Northern—Ogdensburg-railroad, and isometrical views of Bridges 30, 40 60, 82 and 88 feet span on the line of the Utica and Syracuse railroad, with specifications, form of contract, &c. &c., for the Connecticut River railroad.

"It is a work that was a great desideratum, and must prove of great benefit to the engineering profession generally, and especially to the tyro in practical engineering and mechanical knowledge; in truth it strikes us, that it would require years of labor and patient toil on the part of a young engineer to prepare the drawings, and collect the information that will be embodied in this work, and can now be secured for the trifling sum of $9"—[Scientific Amer. March 16, 1850.

In connection with this subject (Iron Railroad Structures) we take occasion to call attention again to Mr. Duggan's valuable and expensive publication, exhibiting drawings, with full descriptions of the various stone, iron and wooden bridges, viaducts, tunnels, culverts, etc., of all the Railroads in the United States. Mr. Duggan is an accomplished Architect and Civil Engineer, who came from Ireland to this country to exercise his profession; but finding Railroad construction here, in many respects, different from that he had been accustomed to in Europe, he applied himself to the study of our system; and the fruits of his researches and investigations embodied in this work, are well calculated to meet the exigencies of engineers, and to assist draughtsmen, bridge builders, mechanics and students.—[N. Y. Journal of Commerce, Feb. 14, 1850.

Published by GEORGE DUGGAN,
300 Broadway, New York.

To whom all communications should be addressed, and subscriptions forwarded.

MINING AGENCY.
Capt. O. H. Matthews,

Civil and Mining Engineer, F. G. S., London, etc.

HAVING completed his three years engagement on Lake Superior, is open to negotiate for another appointment as Mining Agent, or Superintendent of Mines. Also, to give his opinion and advice upon Mineral Lands, to Buyers and Sellers of Stock, or to be consulted on any section in this important branch of national industry.

The most implicit confidence may be relied on, and immediate attention given to all communications (pre paid). Address Capt. O. H. Matthews, Toronto,

July 27th, 1850. 3m

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ROSENDALE CEMENT.

WE are prepared to enter into arrangements for supplying our Cement for public works or other purposes. We warrant the cement equal in every respect to any manufactured in this country. It attains a great degree of hardness, setts immediately under water, and is a superior article for masonry coming in contact with water, or requiring great strength.

For sale in tight barrels, well papered, at their office by OGDEN & MARTIN, 104 Wall st.

February 16, 1850. 1y*

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Railroad Iron.

OF ANY PATTERN AND WEIGHT,
Of a Favorite Brand,
And deliverable in Bond, or Duty paid, at any Port of the U. S., contracted for on favorable terms, by

CHARLES ILLIUS,
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Pig and other Iron also contracted for. Sole Agent for "*Baxter's Machine and Burning Oil*"—particularly adapted for "*Railroads*" and other Machinery—Preferred to Sperm by the many now using it, and 25 *per cent. cheaper.*

Coal.

CUMBERLAND SEMI-BITUMINOUS COAL superior quality for Locomotives, for sale by

H. B. TEBBETTS,
No. 40 Wall St., New York.

May 12, 1849. 1m19

Gloucester Iron Works,
GLOUCESTER, NEW JERSEY,
NEARLY OPPOSITE PHILADELPHIA.

THE subscribers having made extensive alterations in their works, are now prepared to receive orders for all kinds of Stationary and Marine Engines, Boilers, Locomotives, Sugar Mills, and every description of Mill Work.

Also—Orders for Iron and Brass Castings executed with despatch.

Having secured the valuable services of Mr. David Matthew as Superintendent (who has been for five years foreman in the Iron Works of John Watchman, now the Vulcan Works, Baltimore, and for 12 years snperintendent of the Mohawk and Hudson and the Utica and Schenectady Railroads, New York,) they feel confident that all orders entrusted to them will be faithfully executed.

Having an extensive Wharf in front of their works, it will afford a safe harbor for all classes of steam vessels that may require repairs during the winter.

C. M. & J. C. SITER.

Gloucester, July 24, 1850. 1m.

Ray's Patent India Rubber Car Springs.

Savannah, Ga., May 22, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: I have no hesitation in saying, after having used on our road your springs and Fuller's, that I consider yours decidedly the best in every particular, and in this opinion I am sustained by all our officers. Fuller's spring has a tendency to split, and also to chafe or abrade by the constant friction on the cast iron plates or disc: and in my opinion is not near so elastic as yours.

Your springs, which have been in use on our road for 12 or 15 months past, and in constant use under both passenger and freight cars, are to all appearances as elastic, sound and good, as when first put in use.

We are now building eigty-five new cars, of which for fifty-sets the springs have been ordered of you.

GEORGE A. ADAMS,
Master Carpenter,
Central Railroad and Banking Co. of Georgia.

—

Connecticut River Railroad Office,
Northampton, May 4, 1850.

E. CRANE, Esq.,

Dear Sir: It is now about two years since I first tried the experiment of using a set of Ray's India-rubber Springs upon one of our merchandise cars, and although the car has been in constant service since that time, I do not on examination find the slightest difference either in the thickness or elasticity of the material.

The same result has followed wherever we have applied them, either for wheel or draw springs on Engines, Tenders or Cars. At present we use no other; either in replacing old springs or building new cars—and I am perfectly satisfied that for economy, durability, safety, and ease of motion, that Ray's India-rubber is the best article for Springs which has been presented to the public.

Yours respectfully, J. HUNT,
Supt. Connecticut River Railroad.

—

EDWARD CRANE, Esq.,

Dear Sir: Having applied to cars of the Boston and Worcester Railroad Corporation, Ray's Vulcanised Rubber Springs (where they have been in use for some two years last past), I have had occasion to observe their operation, and am free to say in answer to your inquiries, that they retain their *elasticity* perfectly during all changes of atmospheric temperature: and are in my opinion a most valuable acquisition to Railroad Cars—are not liable to derangement, as is the case with steel springs; while at the same time it costs less to apply them. Respectfully yours,

D. N. PICKERING,
Supt. Motive Power, Bost. & Wor. Railroad.

Boston, April 15th, 1850.

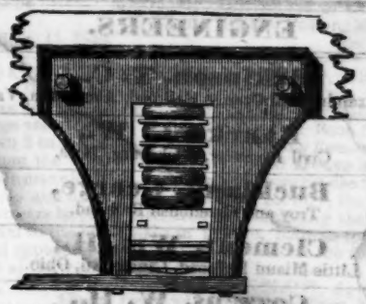
Ibbotson, Brothers & Co's
CELEBRATED CAST STEEL
AND

Best Cast Steel Royal Improved Files, well known as better adapted for Engineers' and Machinists' purposes than any now in use in the United States.

Every description of Square, Octagon, Flat and Round Cast Steel, Sheet, Shovel and Railway Spring Steel, etc., and Steel to order for any purposes—manufactured at their works in Sheffield—and universally known by the old stamp "Globe."

HENRY J. IBBOTSON, Agent.,
218 Pearl st., New York.

FULLER'S PATENT
INDIA RUBBER SPRING.



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them.

Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability.—Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

—

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE,
Engineer S. Carolina R. R., Charleston.

—

"I do not hesitate to allow you to say that I concur in Mr. M'Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M'Rae had seen your springs (as I believe) and entertain it still." WM. PARKER,
Gen'l Supt. of Baltimore and Ohio R. R.

—

Office of Sup't Norwich & Worcester R.R Co.,
December 26, 1849.

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs;' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR.,
Sup't and Engineer.

—

Office R. & P. R. R. Co.,
Boston, 20th December, 1849.

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and do not hesitate to say that Fuller's arrangement *very much superior* to Ray's.

W. RAYMOND LEE, Supt.

—

The following result has been obtain 1 by experiment upon one railroad.

A set of Trucks fitted with Steel Springs cost	$190·77	and weigh	2355 lbs.
The same with Fuller's Springs, . . .	131·71	"	1911 lbs.
Difference, . . .	$59·06	"	444 lbs.

Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

AGENTS.

G. M. KNEVITT, 38 Broadway, N. Y.,
JOHN THORNLEY, 110 Chestnut St., Philad.
The BOSTON BELTING CO., Milk st., Boston.

January 2, 1850.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 28, 1849.

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

ENGINEERS.

Atkinson, T. C.,
Alexandria and Orange Railroad, Alexandria, Va.

Bancks, C. W.,
Civil Engineer, Vicksburg, Miss.

Buckland, George,
Troy and Greenbush Railroad.

Clement, Wm. H.,
Little Miami Railroad, Cincinnati, Ohio.

Cozzens, W, H.,
Engineer and Surveyor, St. Louis, Mo.

Alfred W. Craven,
Chief Engineer Croton Aqueduct, New York.

Davidson, M. O.,
Eckhart Mines, Alleghany Co., Maryland.

Fisk, Charles B.,
Cumberland and Ohio Canal, Washington, D. C.

Felton, S. M.,
Fitchburgh Railroad, Boston, Mass.

Floyd-Jones, Charles,
South Oyster Bay, L. I.

Gzowski, Mr.,
St. Lawrence & Atlantic Railroad, Montreal, Canada.

Gilbert, Wm. B.,
Rutland and Burlington Railroad, Rutland, Vt.

Grant, James H.,
Nashville and Chattanooga R. R., Nashville, Tenn.

S. W. Hill,
Mining Engineer and Surveyor, Eagle River, Lake Superior.

Holcomb, F. P.
Southwestern Railroad, Macon, Ga.

Johnson, Edwin F.
New York and Boston Railroad, Middletown Ct.

Latrobe, B. H.,
Baltimore and Ohio Railroad, Baltimore, Md.

Miller, J. F.,
Worcester and Nashua Railroad, Worcester, Mass.

Morris, Elwood,
Schuylkill Navigation, Schuylkill Haven, Pa.

Morton, A. C.,
Atlantic and St. Lawrence Railroad, Portland, Me.

McRae, John,
South Carolina Railroad, Charleston, S. C.

Nott, Samuel,
Lawrence and Manchester Railroad, Boston,

Prichard, M. B.,
East Tennessee and Georgia R. R., Cleveland, Tenn.

Roebling, John A.,
Trenton, N. J.

W. Milnor Roberts,
Bellefontaine and Indiana Railroad, Marion, Ohio.

Roberts, Solomon W.,
Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

Sanford, C. O.,
South Side Railroad, Virginia.

Schlatter, Charles L.,
Northern Railroad (Ogdensburg), Malone, N. Y.

Sours, Peter,
Rahway, New Jersey.

Stark, George.,
Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

Steele, J. Dutton,
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Trautwine, John C.,
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Philad., Wil. & Baltimore Railroad, Wilmington, Del.

Tinkham, A. W.,
United States Fort, Bucksport, Me.

Thomson, J. Edgar.,
Pennsylvania (Central) Railroad, Philadelphia.

Troost, Lewis,
Alabama and Tennessee Railroad, Selma, Ala.

Whipple, S.,
Civil Engineer and Bridge Builder, Utica, N. Y.

Williams, E. P.,
Auburn and Schenectady Railroad, Auburn, N. Y.

Williams, Charles H.,
Milwaukie, Wisconsin.

HOTELS.

Exchange Hotel,
Adjoining Eastern Railroad Depot,
BUFFALO, N. Y.
BY.....FISK & SPERRY,
Late of Delevan House, Albany.

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NO. 300 *MAIN STREET,*
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Fountain Hotel,
EIGHT STREET, BALTIMORE,
P. THURSTON.....Proprietor.

DUNLAP'S HOTEL,
On the European Plan,
NO. 135 FULTON STREET,
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United States Hotel,
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American Hotel,
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BALTIMORE.
HENRY M. SMITH.....Proprietor.
Late of the Exchange & St. Charles Hotels, Pittsburg.

Washington Hotel,
BY JOHN GILMAN,
$1 *Per Day.*
No. 206 Pratt street, (near the Depot,)
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Barnum's City Hotel,
MONUMENT SQUARE, BALTIMORE.
This Extensive Establishment, erected expressly for a Hotel, with every regard to comfort and convenience, is situated in the centre and most fashionable part of the city, and but a few minutes' walk from the Railroad Depots and Steamboat Landings.
The House has lately undergone a thorough repair, embracing many valuable improvements, and will accommodate 250 Guests. BARNUM & CO.

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BRIDGES & WEST, ... Proprietors.

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Are prepared to execute all kinds of Lithography in good stole and at reasonable rates. Particular attention wil be paid to Engraving Railroad Maps, Engineer's Plans and drafts, etc., and orders in this line are respectfully solicited.

J. T. Hodge
Will attend to the examination of mining tracts near Lake Superior, and prepare Reports and Maps.
Address, during the Summer,
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Cumberland Steam Coal,
FROM THE
FROSTBURG MINES, MD.
H. A. TUCKER,
Agent of Frostburg Coal Co.
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Eaton, Gilbert & Co.,
Railroad Car, Coach and Omnibus Builders,
TROY, N. Y.

Nathan Caswell,
METAL BROKER, 69 WALL ST., N.Y.
For the Purchase and Sale of Railroad Iron (new and old,) Boiler Plates, Pig and Bar Iron, Lead, Tin, Copper, Spelter, etc. Refers to
Messrs. Boorman, Johnston, & Co., New York.
" Grinnell, Minturn & Co., "
" Barston, Pope & Co., "
" Earps & Brink, Philadelphia.
" E. Pratt & Brother, Baltimore.
John Barstow, Esq., Providence.
Lewis Bullard, Esq., Boston.
February 9, 1850. 6m*

United States Railroad Guide and Steamboat Journal.
CONTAINING OFFICIAL TIME ADVERTISEMENTS, Tables of Stations, Distances, Fares, Time, etc., with much miscellaneous matter for the travelling public. Price 12 cents a copy. Yearly subscription $1. Published at 43 Ann street, New York.

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R. S. Stenton,
20 CLIFF STREET, NEW YORK,
AGENT FOR
J. & Riley Carr's
BAILEY-LANE WORKS, SHEFFIELD,
Manufacturers of Cast, Shear, German and Blister
STEEL
Of all descriptions. *Warranted* Good
FILES.
Manufacturers of Machinists' Warranted Best Cast Steel *Files*, expressly for woring upon Iron and Steel, made very heavy for recutting.
☞ A full Stock of *Steel* and *Files* at all times on hand. 6m4

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Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
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Agents for Avalon Railroad Iron and Nail Works. Maryland Mining Company's Cumberland Coal 'CED —'Potomac' and other good brands of Pig Iron.

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CLEAN COP WASTE, suitable for cleaning Railroad, Steamboat and Stationary Engines, constantly an hand and for sale by
KENNEDY & GELSTON,
5½ Pine St., New York.
October 27, 1849. 3m

Railroad Car Manufacturer's Furnishing Store.

F. S. & S. A. MARTINE,

IMPORTERS AND MANUFACTURERS OF

RAIL ROAD CAR & CARRIAGE LININGS,

PLUSHES, CURTAIN MATERIALS, ETC.,
112 WILLIAM ST., NEAR JOHN.

3-4 and 6-4 Damasks, Union and Worsted; Moreens, Rattinetts, Cloths, Silk and Cotton Velvets, English Buntings

Samuel Kimber & Co.,

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AGENTS for the sale of Charcoal and Anthracite Pig Iron, Hammered Railroad Car and Locomotive Axles, Force Pumps of the most approved construction for Railroad Water Stations and Hydraulic Rams, etc., etc.

July, 27, 1849.

James Herron, *Civil Engineer,*

OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,

PATENTEE OF THE

HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

To Railroad Companies.

—WROUGHT IRON WHEELS—

SAFETY AND ECONOMY.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, NEW YORK,

Are Manufacturing Wrought Iron Driving, Truck, Tender, and Car Wheels—made from the best American Iron. Address E. S. NORRIS.

May 16, 1849.

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BROKER IN SCOTCH AND AMERICAN PIG IRON;

Bar Iron, Lead, Spelter, Tin, Copper, etc.,
No. 4 Liberty Place, MAIDEN LANE,
(Near Broadway,)
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Manufacture of Patent Wire ROPE AND CABLES,

For Inclined Planes, Suspension Bridges, Standing Rigging, Mines, Cranes, Derrick, Tillers, &c., by
JOHN A. ROEBLING, Civil Engineer,
TRENTON, N. J.

Doremus & Harris,

ANALYTICAL & CONSULTING CHEMISTS,
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☞SCHOOL OF CHEMISTRY.☜

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E. BROWN AND SON Mathematical inst. makers No. 27 Fulton Slip, New York, make and keep for sale, Theodolites, Levelling inst., Levelling rods, Surveyors Compasses, and Chains, Cases of Mathematical drawing insts. various qualities, together with a general assortment of Ivory Scales and small insts. generally used by Engineers.

Ranstead, Dearborn & Co.,

MANUFACTURERS OF
LOCOMOTIVE CRANKS AND CAR AXLES,
ALSO
WROUGHT IRON SHAFTING,
And All Kinds of Hammered Shapes.

Forge at Commercial Point, Dorchester,
Office 25 Foster's Wharf, opposite No. 211 Broad St.
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Henry J. Ibbotson,

IMPORTER of Sheffield and Birmingham Goods. Also, Agent for the Manufacture of Telegraph Wire. 218 PEARL ST., NEW YORK.

Cumberland, (Md.,) Coals for Steaming, etc.

ORDERS RECEIVED FOR AND FILLED by J. COWLES, 27 Wall St., N. Y.

Samuel D. Willmott,

MERCHANT, AND MANUFACTURER OF
CAST STEEL WARRANTED SAWS,
—AND FILES—
IMPORTER OF THE
GENUINE WICKESRLY GRINDSTONES
NO. 8 LIBERTY STREET,
NEW YORK.

IRON.

Railroad Iron.

3,000 TONS C. L. MAKE 63½ lbs. per yard, now landing and to arrive.

Also contracts made for future delivery of above superior make English Iron.

300 Tons Banks Best Iron, Round, Square and Flat.
200 " English Bar " " " "
10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by
DAVID W. WETMORE.

New York, March 26, 1850. 3m

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.

COLLINS, VOSE & CO.,
74 South St.

New York, June 1, 1850.

Railroad Iron.

1,500 Tons weighing 58 lbs. per lineal yard.
500 " " 57 " "
500 " " 56 " "
500 " " 60 & 61 lbs, "

Also 2½x½ flat rails. All the above being of approved patterns. For sale by
DAVIS, BROOKS, & CO.,
68 Broad street.

N.B.—Rails imported on commission, or at a fixed price.

Iron.

Pig Iron, Anthracite and Charcoal; Boiler and Flue Iron, Spring and Blistered Steel, Nail Rods, Best Refined Bar Iron, Railroad Iron, Car Axles, Nails, Stove Castings, Cast Iron Pipes of all sizes, Railway Chairs of approved patterns' for sale by
COLEMAN, KELTON & CAMBELL,
109 N. Water St., Philadelphia.

IRONDALE PIG METAL, MANUFACTURED and for sale by the Bloomsburg Railroad Iron Co.
LINDLEY FISHER, Treasurer.
75 N. Water St., Philadelphia.

Railroad Iron.

2000 Tons, weighing 58 pounds per lineal yard, of the most approved pattern of T rails, in store and to arrive, for sale by
COLLINS, VOSE & CO.,
74 South St.

New York, June 1, 1850.

Railroad Iron.

1675 Tons, weighing about 61 lbs. per yard, 90 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.

New York, Feb. 25, 1850.

N.B.—B., J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the Unitad States.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited. COOPER & HEWITT,
17 Burling Slip, New York.

February 15, 1850.

Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for sale by GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.

Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, *Agent.*
Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Merritt & Co., New York; E. Pratt & Brother, Baltimore, Md.

LAP—WELDED

WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM ONE AND A QUARTER TO SEVEN INCHES IN DIAMETER.

THE ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER & SON, Patentees,
28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1849. New York.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.

August 16, 1849. 1y33

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.

November 6, 1848.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.

REEVES, BUCK & CO.
45 North Water St. Philadelphia.

March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
In complete operation, are prepared to execute faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, warranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggoted axle, furnished and fitted up for use, complete

☞Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

☞ Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.
Worcester, Mass., May 25, 1849.

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
6m9 62 Buchanan's Wharf, Baltimore.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,
BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electerised Steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,
No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron, suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Charcoal Juniatta Billet Iron for Wire; Refined Iron for Bridging, of great strength; Cut Nails, Spikes, and Brads; Railroad Spikes and Wrought Chairs. 22tf

Stickney & Beatty,

DEALERS IN IRON AND IRON MANUFACTURERS.

AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish Ellicott's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel and Maryland (Balt.) charcoal forge pig irons, Balt. hard iron for chilling wheels, anti-Eatam nails, Catoctin foundry iron, boiler blooms from the Caledonian works, Wm. Jessop & Son's cast steel, Coleman's blister steel and nail rods, hoop, band, sheet, oval and common English iron.

Nos. 18 and 20 South Charles st., Baltimore.

Railroad Iron.

CONTRACTS made by the subscribers, agents for the manufacturers, for the delivery of Railway Iron, at any port in the United States, at fixed prices, and of quality tried and approved for many years, on the oldest railways in this country.

RAYMOND & FULLERTON, 45 Cliff st.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.
100 " No. 2 do. do. do.
300 " Nos. 2 & 3 Forge do. do.
100 " No. 2 Glendon do. do.
140 " Nos. 2 & 3 Lehigh Crane do do.
100 " No. 1 Pompton Charcoal do.
100 " New-Jersey Blooms
50 " New-Jersey Faggoting Iron, for shafts
Best Bars, ½ to 4 inch by ½ to 1 inch thick.
Do do Rounds and Squares, ½ to 3 inch.
Rounds and Squares, 3-16 to 1 inch.
Half Rounds, ½ to 1 in. Ovals & Half Ovals ½ to 1½ in.
Bands, 1½ to 4 inch. Hoops, ½ to 2 inch.
Trunk Hoops, ½ to 1½ in. Horse Shoe & Nut Iron.
Nail Plates. Railroad Spikes.

DUDLEY B. FULLER & Co., 139 Greenwich-st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.
Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND
ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.
November 23 1849.

Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract for the delivery of English, Welsh and Scotch Rails, of any pattern and weight, also for every description of Welsh, Scotch and Swedish Iron, Railway Chairs and Spikes, Rivets, Bolts, Nuts, Washers, Chain Cables, Anchors, Tin Plates, German Spelter, Iron Castings, and every description of Machinery. WILLIAM BIRD & CO.,
Iron and Tin Plate Merchants,
44 Wall st., New York.
And at 5 Martin's Lane, London,
and 140 Buchanan st., Glasgow.
July 27th, 1850.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.
Albany, August 18, 1849.

Railroad Iron.

B. O. Railway Tires, Railway Wheels,
Scotch Pig Iron, Tin Plates and Banca Tin,
Muntzs Patent Metal Sheathing,
Baltimore Copper.

Contracts for Rails made on behalf of the manufacturers, for delivery at any ports in the United States, at fixed prices.

Bowling Tires and Tire Bars and Scotch Pigs imported to order.

Muntz's Ship-sheathing, and a general stock of Tin Plates and Banca Tin in store, and for sale by

RAYMOND & FULLERTON, 45 Cliff st.

Bowling Iron. Stamped B.O.

Railway Tire Bars	Rivet Iron
Locomotive and other Axles	Locomotive Frame do
Boiler Plates	Bars,

and every other description of this superior Iron.

The subscribers, agents for the sale of Bowling Iron, are prepared to execute orders for importation, especially for railway and machinery uses, with despatch from the manufacturers.

RAYMOND & FULLERTON, 45 Cliff st.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS LOVEGROVE,
Machinist and Founder,
West Falls Avenue, below Pratt st., Baltimore.

Rosendale Cement.

THE NEWARK AND ROSENDALE LIME AND CEMENT CO. are now manufacturing at their works in NEWARK, N. J., and Ulster county, N.Y., a very superior article of *Hydraulic Cement*—also Lime Calcine Plaster, etc. Contractors and dealers will find it to their advantage to call or make application before purchasing elsewhere. All communications addressed to the subscriber, at Newark, N.J., will be punctually attended to.

1y*15 HENRY WILDE, Secretary.

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by

E. & G. W. BLUNT,
No. 179 Water St., cor. Burling Slip.
New York, May 19, 1849.

American Railway Guide,

AND POCKET COMPANION FOR THE
UNITED STATES;

CONTAINING Correct Tables, shownig the time for starting of trains from all stations, distances, fares, etc., on all the Railway lines in the U. States; also many of the principal Steamboat and Stage routes—accompanied by a complete RAILWAY MAP. Price, single copies 12½ cts., or $1 per annum. Published on the first of every month, corrected from returns furnished by the Railway Superintendents throughout the Union.

This book has been compiled somewhat on the plan of Bradshaw's Guide, with such improvements in size, form and arrangement as have seemed desirable; and the publisher confidently hopes it will not be found liable to the objections of incompleteness and incorrectness, which have been made, and justly too, against various other similar works heretofore issued.

The subscriber having had the management of the NEW YORK PATHFINDER almost from its commencement, has enjoyed superior facilities in obtaining information relating to the thoroughfares of travel, and is therefore well qualified to prosecute with success the arduous undertaking of furnishing a complete and correct national guide book.

STRINGER & TOWNSEND, General Agents, 222 Broadway: and sold also by Booksellers and Periodical Dealers generally throughout the country; also on all the Railways and Steamboats.

CURRAN DINSMORE, Publisher.
N. Y. Pathfinder Office,
138 Fulton St., New York City.

FARMERS! ATTENTION!!

John Mayher & Co's

NEW AGRICULTURAL WAREHOUSE AND SEED STORE,

197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our *Stock* before buying elsewhere.

Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs! together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,
197 Water st., N. Y.

February 9, 1850.

N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

RAILROAD CAR AND COACH TRIMMINGS.

Doremus & Nixon,

IMPORTERS AND FURNISHERS

HAVE FOR SALE

Plain Garnet Plush.	Fig. Garnet Plush (Butterfly pat.
" Crimson "	" Crimson " (Elegant.
" Scarlet "	" " " (Gen. Taylor.

BROCATELLES.

Crimson Silk Brocatelles.	Gold and Maroon do.
Gold and Blue "	" Brown "
Silk and Wool "	of every color.

MOQUETTS,

Of elegant designs and colors.

GERMAN CLOTH FOR CAR LININGS.

The most beautiful goods ever shown in this country, and the subscribers are the sole agents for the sale of them.

Oil cloths Enamelled with Gold. } These goods can be
" " Silver. } furnished in any
Do. Silver ground velvet printed. } dimensions req'd.

CURLED HAIR

Of every description and quality.

JNO. W. A. STRICKLAND, Agent.
New York, 1850. 1y16

FOWLER M. RAY'S Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops.
Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,
HORACE B. GARDNER,
Foreman of the Car Shops.

—

Supt. Office N.Y. & H. R.R.,
New York, March 8, 1850.

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes," and have in every case given entire satisfaction, and I consider them the best spring now in use.

M. SLOAT, Supt.

—

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders.

Yours truly, S. M. FELTON,
Supt. Fitchburg Railroad.

Office New Jersey Railroad Co.,
Jersey City, March 8, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

1st. The cost is 30 per cent. less.

2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.

3d. Less care and attention is required, as they are not liable to get out of repair.

4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.

5th. The freedom from noise.

6th. There is greater safety in case of accident, as they cannot be broken.

7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City. Yours respectfully,

T. L. SMITH, Supt.

—

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars. Yours respectfully,

ROBERT SCHUYLER.

—

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,
OSGOOD BRADLEY, Car Builder, Worcester.
T. & C. WASON, do. Springfield.
DEAN, PACKARD & MILLS, do. do.
DAVENPORT & BRIDGES, do. Cambridgeport.

—

Office of the New Jersey Railroad Co.,
Jersey City, March 7, 1850.

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Prest.
New Jersey Railroad and Trans. Co.

—

Roxbury, February 28, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The *cold weather* does not affect *them*, as it has *other* rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,
GEO. S. GRIGGS,
Supt. of Machinery, Boston and Prov. R.R.

Fall River, February 2, 1850.

In answer to yours of the 20th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,
GEO. HAVEN,
Supt. Fall River Railroad.

—

Jersey City, March 9, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to al railroad companies. DAVID H. BAKER,
Foreman of Car Shop of N.J. R.R. & Trans. Co.

—

Harlem R.R. Depot,
New York, March 7, 1850.

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried. J. M. SMART,
Foreman at 42d St. Depot.

—

Old Colony Railroad Office,
Boston, March 6, 1850.

EDWARD CRANE, Esq.,
President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Comp'y have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Buffing Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,
JAS. H. MOORE,
Supt. O. C. Road.

—

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs. Very respectfully,
EATON, GILBERT & CO.

Passenger Car Linings.

THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer.

Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention.

March 23, 1850. 2m

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 inches diameter. Suction Hose. *Steam Packing*—from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street.
New York, May 21, 1849.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK,
March 6, 1850. Troy, N. Y.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.

THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammersman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

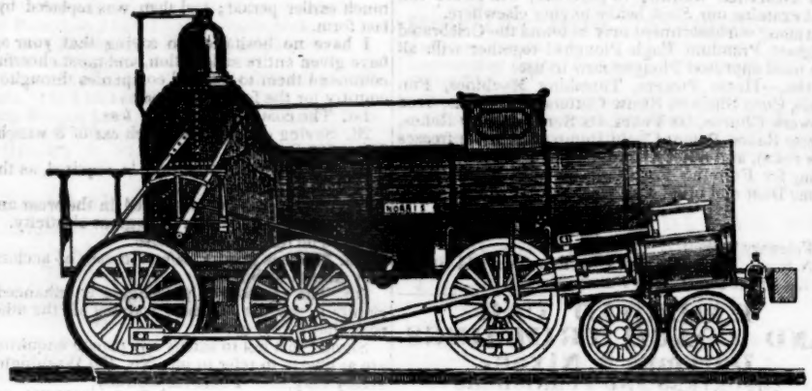
He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others. J. L. BROWN.

☞ Bank Scales made to order, and all Scales of his make Warranted in every particular.

References given if required. 4tf

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,



THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,
☞ *Sole Manufacturers*, ☜
No. 85 Liberty St.
NEW YORK.

And in the principal cities and towns in the U. States.

☞ The Premium of the AMERICAN INSTITUTE was awarded to the *Etna Safety Fuse* at the late Fair held in this city.

November 3, 1849. 1y

COLUMBUS, OHIO,

Railroad Car Manufactory.

RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited. 1y8

To Inventors and Patentees.

OWEN G WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs. 1y3

FAIRBANKS' RAILROAD SCALES.—THE subscribers are prepared to construct at short notice, *Railroad* and *Depot Scales*, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accuracy of weight and dispatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon railroads, either in the United States or Great Britain;—and the managers refer with confidence to the following in the United States.

Eastern Railroad.	Boston & Maine Railroad.
Providence Railroad.	Providence and Wor. Road.
Western Railroad.	Concord Railroad.
Old Colony Railroad.	Fitchburg Railroad.
Schenectady Railroad.	Syracuse and Utica Road.
Balt. and Ohio Railroad.	Baltimore and Susq. Road.
Phila. & Reading Road.	Schuylkill Valley Road.
Central (Ga.) Railroad.	Macon and Western Road.

New York and Erie Railroad.

And other principal Railroads in the Western, Middle and Southern States.

E. & T. FAIRBANKS & CO.
St. Johnsbury, Vt.

Agents, { FAIRBANKS & Co., 89 Water St., N. York. / A. B. NORRIS, 196 Market St. Philadelphia.

April 22, 1849. 1y*17

NOTICE TO
Superintendents of Railroads.

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE,
Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, N. Y.

THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.

Chilled Wheels for Cars, Tucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

April 11, 1849. E. S. NORRIS.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190¼ miles.

Passenger Trains leave Savannah and Macon daily at 7 a.m.
Passenger trains arrive daily at Savannah, 6 15 p.m.
" " " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391¼ miles in length* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,		$5 75
" " "	Atlanta,	9 50
" " "	Augusta,	6 50
" " "	Columbus,	15 00
" " "	Opelika,†	17 00
" " "	Jacksonville, Ala.,	20 00
" " "	Talladega, Ala.,	22 00
" " "	Huntsville Ala.,	22 00
" " "	Decatur,	22 00
" " "	Tuscumbia, Ala.,	22 50
" " "	Tuscaloosa, Ala.,	28 00
" " "	Columbus, Miss.,	28 00
" " "	Aberdeen, "	28 00
" " "	Holly Springs	28 00
" " "	Nashville, Tenn.	25 00
" " "	Murphreesboro'	25 00
" " "	Columbia, do.,	25 00
" " "	Memphis, do.,	30 00

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York

Stages for Tallahasse and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus a distance of 97 miles, or from Griffin thro' West Point, a distance ot 93 miles.

* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423¼ miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about $2.

RATES OF FREIGHT FOR MERCHANDIZE GENERALLY, FROM SAVANNAH TO MACON.

Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot - - 13 cents.
Crockery Ware, in crates, boxes or hhds, per cubic foot. - - - - 10 "
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs., 50 "
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs., - - - - 45 "
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs., 40 "
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "
Oil and molasses per hhd., (smaller casks in proportion) - - - $6 00 "
Salt per sack not exceeding 4 bushels, - 50 "

☞ Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission. WM. M. WADLEY, Supt.

Savannah, Ga., February 24, 1850.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, near Third, below Walnut, Philadelphia.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubfoot - -	$0 18	$0 28
2d class	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc. - - -	0 40	0 65
	Cotton, per 100 lbs. -	0 45	0 70
	Molasses per hogshead -	8 50	13 50
	" " barrel - -	2 50	4 25
	Salt per bushel - -	0 18	
	Salt per Liverpool sack -	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows - -	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton. F. C. ARMS,

44*1y Sup't of Transportation.

CAR MANUFACTORY
CINCINNATI, OHIO.

KECK & DAVENPORT WOULD RESPECTfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.

Cincinnati, Ohio, Oct. 2, 1848. 44tf

NICOLL'S PATENT SAFETY SWITCH FOR

Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,
Reading, Pa.

FOWLER M. RAY'S
METALLIC INDIA RUBBER CAR SPRINGS.

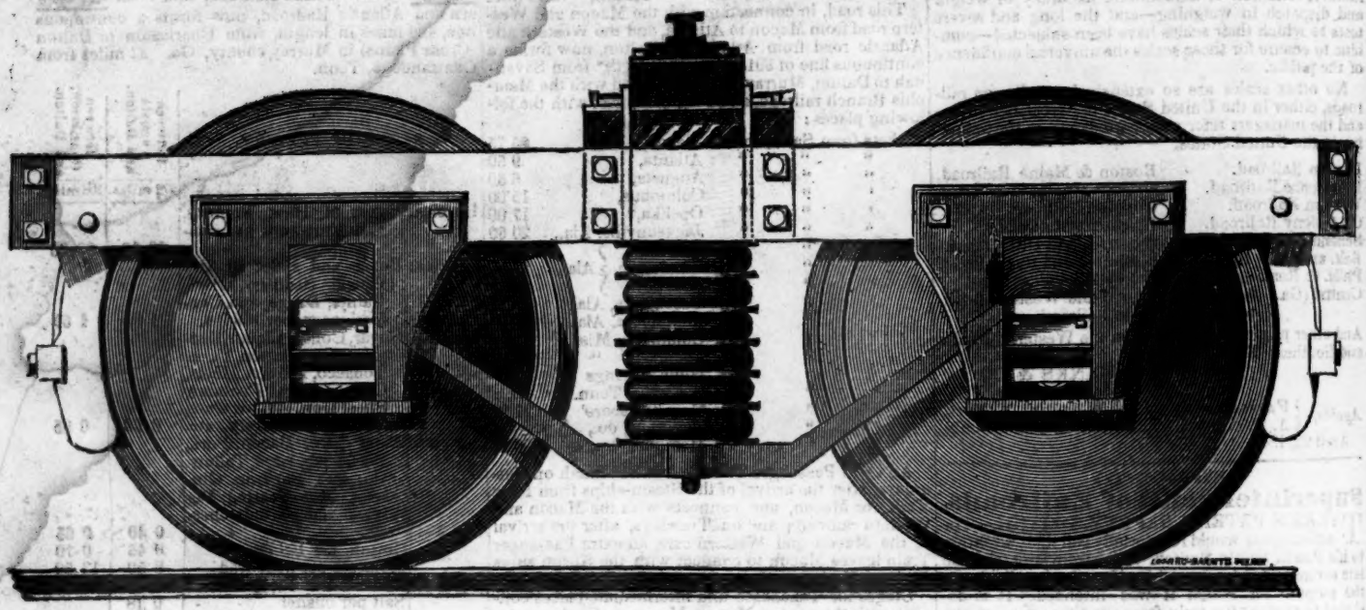


Fig. 1.

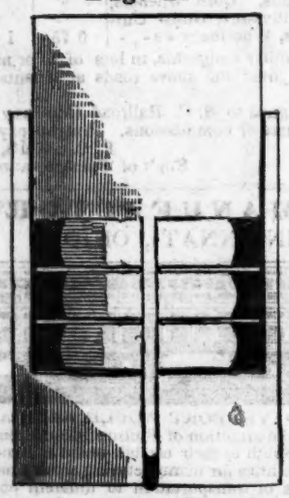


Fig. 2.

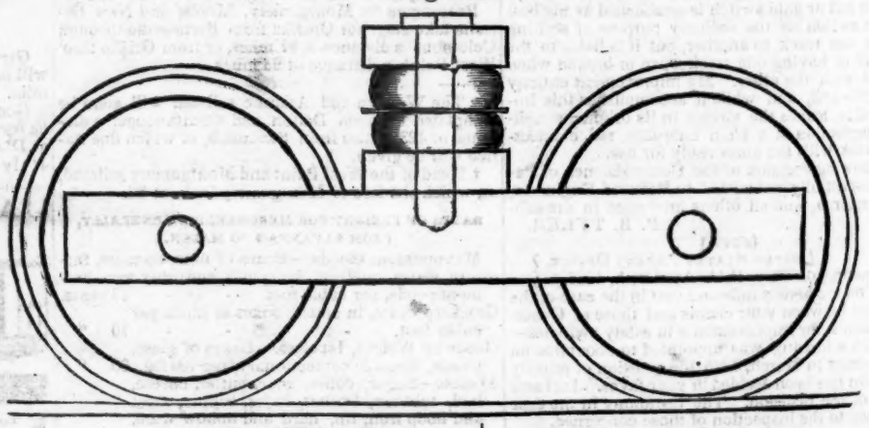
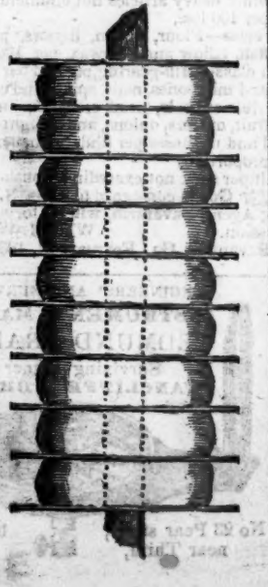


Fig. 3.



So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1, Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannester testify as being the model marked "B."

Cut No. 2, Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3, Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

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☞ LETTERS and COMMUNICATIONS to this Journal may be directed to the *Editor*,
HENRY V. POOR,
136 NASSAU STREET.